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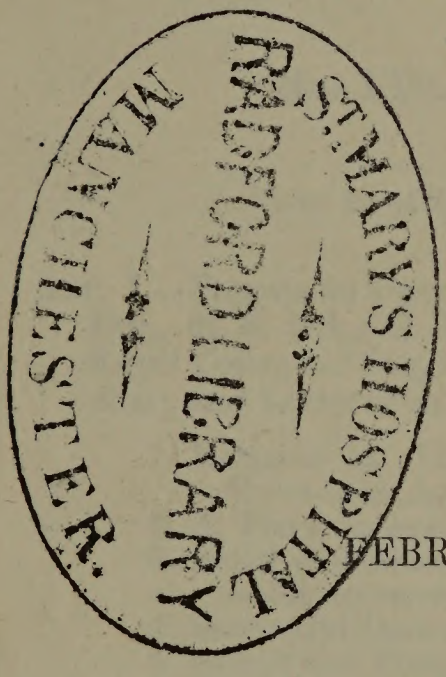

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2. On Chloroform and its Safe Administration. By W. M. Coates, M. R. C. S. L., &c. London: Walton and Maberly, 1858. 8vo. pp. 36.

3. An Introduction to Clinical Surgery; being a Method of Investigating and Reporting Surgical Cases. By Furneaux Jordan, Demonstrator of Anatomy at the Queen's College, Birmingham, &c. London: Churchill, 1858. Fcap. 8vo. pp. 155.

4. The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ. By H. Thompson, M. B., F. R. C. S., &c. Second Edition, much enlarged and revised. London: Churchill, 1858. 8vo. pp. 426.

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6. An Inquiry into the Origin and Intimate Nature of Malaria. By T. Wilson, Esq. London: Renshaw, 1858. 8vo. pp. 136.

7. Syllabus of the Course of Lectures on Medical Logic, delivered in Marischal College and University, Aberdeen. By Francis Ogston, M. D., &c. Edinburgh: Maclachlan and Stewart, 1858. Fcap. 8vo. pp. 43.

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9. A Manual of the Philosophy of Voice and Speech, especially in relation to the English Language and the Art of Public Speaking. By James Hunt, M. D., &c. London: Longmans, 1859. Post 8vo. pp. 422.

10. On Nutrition in Health and Disease. By James H. Bennett, M. D.' &c. London: Churchill, 1858. 12mo. pp. 210.

11. An Expository Lexicon of the Terms, Ancient and Modern, in Medical and General Science, &c. By R. G. Mayne, M. D. London: Churchill, 1858. Part VIII.

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13. Diseases of the Urinary Organs. A Compendium of their Diagnosis, Pathology, and Treatment. By W. W. Morland, M. D., &c. Philadelphia: Blanchard and Lea, 1858. 8vo. pp. 579.

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27. Diphtheritis. A Concise, Historical, and Critical Essay on the late Epidemic Pseudo-membranous Sore Throat of California, 1856–57, &c. By V. J. Fourgeaud, M. D. Sacramento: Anthony and Co., 1858. Pamphlet, pp. 44.

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31. Ueber Chronische Bleinergiftung durch Schupftabak. Von Dr. R. B. Günther, Dresden. Pamphlet, pp. 16.

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33. Fragmentary Remains, Literary and Scientific, of Sir Humphrey Davy, Bart. With a Sketch of his Life and Selections from his Correspondence. Edited by his Brother, John Davy, M. D., F. R. S. London: Churchill, 1858. 8vo. pp. 330.

34. The Urine in Health and Disease; or a Simple Explanation of the Physical Properties, Composition, and Uses of the Urine, of the Functions of the Kidneys, and of the Treatment of Urinary Disorders. With Engravings. By Arthur Hill Hassall, M. D., &c. London: Churchill, 1859. 12mo. pp. 82.

35. A Hand-book of Chemical Analysis (adapted to the Unitary Notation), based on the Fourth Edition of Dr. H. Wills' Chemical Analysis. By E. T. Conington, A. M., F. C. S., &c. London: Longmans, 1858. 8vo. pp. 290, with a Volume of Tables.

36. The Uræmic Convulsions of Pregnancy, Parturition, and Childbed. By Dr. C. R. Braun. Translated by J. Matthews Duncan, F. C. P. E., &c. New York: S. S. and W. Wood. Fcap. 8vo. pp. 182.

37. The Book of Prescriptions, &c. By J. H. Beasley. Second Edition. London: Churchill, 1859. 16mo. pp. 548.

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39. On Infantile Mortality, and the Establishment of Hospitals for Sick Children. By William Moore, A. B., M. B., &c. Dublin: Fannin and Co., 1859. Pamphlet, pp. 27.

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41. Johan Müller: an Eloge pronounced in the Hall of the University of Berlin. By Professor R. Virchow. Translated and edited by A. Mercer Adam, M.D., Boston. Edinburgh: Sutherland and Knox, 1859. Pamphlet, pp. 30.

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GERMANY.

53. Zeitschrift für rationelle Medicin; herausgegeben Von Dr. J. Henle und Dr. C. v. Pfeufer. Published Monthly. Hcidelberg and Leipzig: C. F. Winter. (Received regularly.)

54. Zeitschrift der Kais. Kön. Gesellschaft der Aerzte zu Wien. Redacteur: Professor, Dr. Ferdinand Hebra. Vienna: Gerold. (No. 12, for 1853, Nos. 3, 4, 6, 9, 10, 11, for 1854, No. 1 for 1856, and Nos. 1 and 2 for 1857, not received.)

55. Vierteljahrschrift für die praktische Heilkunde, herausgegeben vol. der medicinischen Facultät in Prag. Publishcd Quarterly. Prague: Karn André. (Received regularly.)

56. Canstatt's Jahresbericht über die Fortschritte der gesammten Medicin in allen Ländern. Redigirt von Pr. Scherer, Pr. Virchow, und Dr. Eisenmann. Würzburg: Stahel. (Received regularly.)

57. Journal für Kinderkrankheiten. Herausgegeben von Dr. Fr. J. Behrend und Dr. A. Hildebrand. Published Monthly. Erlangen: Palm and Enke. (Received irregularly.)

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PRUSSIA.

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61. Archiv für die Holländischen Beiträge zur Natur- und Heilkunde. Herausgegeben von F. C. Donders, Utrecht, und W. Berlin, Amsterdam. Utrecht: Kemink and Zoon. (Received regularly.)

NORWAY.

62. Norsk Magazin, for Lægevidenskaben, udgivet af det medicinske Selskab i Christiania. Redigeret af W. Boeck. Faye. A. W. Münster. Lund. Voss. Published Monthly. Christiania: Feilberg & Landmark. (Received regularly.)

SWEDEN.

63. Hygiea, Medicinsk och Pharmaceutisk Månads-Skrift. Published Monthly. Stockholm. (Received regularly.)

DENMARK.

64. Bibliothek for Læger. Udgivet af Direktionen for det Classenske Literaturselskab. Redigeret af Dr. E. Dahlerup. Copenhagen: Reitzels. (Received regularly.)

ITALY.

65. Gazzetta Medica Italiana Federativa Toscana. Florence. Published Weekly. (Received regularly.)

66. Bulletino delle Scienze Mediche. Publicato per cura della Società Medico-Chirurgica di Bologna. Published Monthly. (Received regularly.)

67. Giornale Veneto di Scienze Mediche. Published Monthly. (Received regularly.)

NOTICE TO CORRESPONDENTS.

The great pressure on our space, from the unusual extent of the Original Communications, has compelled us to postpone, until our next Number, some papers already in type: amongst others, one by Professor Heslop, of Birmingham, on "Intestinal Worms;" one by Staff-Surgeon Williamson, on "The Wounded in the Mutiny in India, who were received into Fort Pitt Hospital at Chatham;" and the "Memoir of the late Thomas Hawkesworth Ledwich, F. R. C. S. I."

Books and Periodicals published in Northern Europe and the German States, intended for our Journal, should be transmitted "For the Editor of the Dublin Quarterly Medical Journal, care of Messrs. Trübner and Co., London," *through their Correspondents* in the principal Towns on the Continent. Our Correspondents in France, Belgium, Italy, and Spain, are requested to communicate with us through "Doctor Higgins, 212, Rue Rivoli, Paris."

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ii. Lettsomian Lectures on Syphilis. Delivered before the Medical Society of London in 1858. By Victor de Méric, Esq., &c.

10. On Dropsy connected with Disease of the Kidneys (Morbus Brightii), and on some other Diseases of those Organs associated with Albuminous and Purulent Urine. Illustrated by numerous Drawings from the Microscope. By W. R. Basham, M. D., F. R. C. P., Physician to the Westminster Hospital, . 429

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2. Principes de Mécanique Animale ou Étude de la Locomotion chez l'Homme et les Animaux Vértébrés. Par Félix Giraud-Teulon, Docteur en Médecine de la Faculté de Paris, &c. Paris: J.-B. Bailliére et Fils, 1858. 8vo. pp. 484.

3. On the Hygienic Management of Infants and Children. By T. Herbert Barker, M. D., &c. London: Churchill, 1859. 8vo. pp. 120.

4. Third Report of the Clinical Hospital, Manchester. Containing results on Physical Development, Hooping-cough, and transmitted Diseases. By James Whitehead, M. D. London: Churchill, 1859. 8vo. pp. 117.

5. A Treatise on Human Physiology, designed for the Use of Students and Practitioners of Medicine. By John C. Dalton, Jun., Professor of Physiology, &c., in the College of New York, &c. Philadelphia: Blanchard and Lea, 1859. Royal 8vo. pp. 600.

6. A Letter to the Right Hon. the Earl of Shaftesbury on the Laws which regulate Private Lunatic Asylums, &c. By E. J. Seymour, M. D., F. R. S., &c. London: Longmans, 1859. Pamphlet, pp. 59.

7. Practical Observations on the Operations for Strangulated Hernia. By J. H. James, F. R. C. S., late Senior Surgeon to the Devon and Exeter Hospital. London: Churchill, 1859. 8vo. pp. 95.

8. Hemorrhoids and Prolapsus of the Rectum; their Treatment by the Application of Nitric Acid. By Henry Smith, F. R. C. S., &c. London: Churchill, 1859. 8vo. pp. 46.

9. Localized Movements, or Muscular Exercises, combined with Mechanical Appliances for the Treatment of Spinal Curvature and other Deformities. By H. H. Bigg, Anatomical Mechanician. London: Churchill, 1859. 12mo. pp. 120.

10. Diphtheria. A Lecture delivered at the Norfolk and Norwich Hospital. By W. H. Ranking, M. D., &c. London: Churchill, 1859. Pamphlet, pp. 30.

11. On the Prevention and Treatment of Mental Disorders. By G. Robinson, M. D., &c. London: Longmans, 1859. Post 8vo. pp. 228.

12. On Excision of the Knee. By G. M. Humphrey. Reprint. Pamphlet, pp. 26.

13. On Poisons in relation to Medical Jurisprudence and Medicine. By Alfred Swaine Taylor, M. D., F. R. S., &c. Second Edition. London: Churchill, 1859. Fcap. 8vo. pp. 863.

14. Belfast District Asylum. Petition to the House of Commons against the Lunatic Poor (Ireland) Bill, 1859. Pamphlet, pp. 10.

15. Chloroform and other Anæsthetics; their History and Use during Childbirth. By John Chapman, M. D., &c. London: Williams and Norgate, 1859. Pamphlet, pp. 51.

16. Fourth and Fifth Annual Reports of the County and City of Worcester Pauper Lunatic Asylum, 1858. Pamphlets, pp. 76 and 76.

17. Irritable Bladder; its Causes and Curative Treatment. By F. J. Gant, M. R. C. S. E., &c. London: Churchill, 1859. Post 8vo. pp. 136.

18. Statistical Report of Cases of Insanity treated in Abington Abbey, Northampton, from January, 1854, to December, 1858. By Thomas Prichard, M. D., &c. No. 3, 1859. Pamphlet, pp. 26.

19. General Debility and Defective Nutrition; their Causes, Consequences, and Treatment. By Alfred Smee, F. R. S., &c. London: Churchill, 1859. Fcap. 8vo. pp. 98.

20. On the Cervix Uteri in Pregnancy. By J. Matthews Duncan, M. D., &c. Reprint. 1859. pp. 9.

21. Observations on the Deaf and Dumb. By R. J. Dunglison, M. D., of Philadelphia. Reprint. Pamphlet, pp. 31.

22. The Causation and Prevention of Disease. By John Parkin, M. D., &c. London: Churchill, 1859. 8vo. pp. 191.

23. Eighth Annual Report of the Wilts County Asylum, Devizes, for the year 1858. Pamphlet, pp. 48.

24. The Mortality after Operations of Amputation of the Extremities, and the Causes of that Mortality. By A. E. Samson. Prize Essay. London: Churchill, 1859. Pamphlet, pp. 23.

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27. A Treatise on Diseases of the Air Passages; comprising an Inquiry into the History, Pathology, Causes, and Treatment of those Affections of the Throat called Bronchitis, Chronic Laryngitis, Clergyman's Sore Throat, &c., &c. By Horace Green, M. D., &c. Fourth Edition. New York: Wiley and Halstead, 1858. 8vo. pp. 348.

28. On Diseases of the Stomach, with an Introduction on its Anatomy and Physiology; being Lectures delivered at St. Thomas's Hospital. By William Brinton, M. D., &c. London: Churchill, 1859. Post 8vo. pp. 406.

29. A System of Dental Surgery. By John Tomes, F. R. S., &c. With 208 Illustrations. London: Churchill, 1859. Fcap. 8vo., pp. 599.

30. Healthy Skin. A Popular Treatise on the Skin and Hair, their Preservation and Management. By Erasmus Wilson, F. R. S. London: Churchill, 1859. Fcap. 8vo. pp. 288.

31. A Manual of Medical Diagnosis, being an Analysis of the Signs and Symptoms of Disease. By A. W. Barclay, M. D., &c. Second Edition. London: Churchill, 1859. Fcap. 8vo. pp. 616.

32. A Treatise on Syphilis in New-born Children and Infants at the Breast. By P. Diday. Translated by G. Whitley, M. D. The New Sydenham Society: London, 1859. 8vo. pp. 272.

33. The Transactions of the American Medical Association, instituted 1847. Vol. XI. Philadelphia, 1858. 8vo. pp. 1027.

34. The Insalubrity of the Deep Cornish Mines, and as a Consequence the Physical Degeneracy and Early Deaths of the Mining Population. By John Robertson, M. D. Reprint. Pamphlet, pp. 24.

35. An Essay on the Action of Medicines in the System; or "on the Mode in which Therapeutic Agents introduced into the Stomach produce their Peculiar Effects on the Animal Economy." By F. W. Headland, M. D., &c. Third Edition. London: Churchill, 1859. 8vo. pp. 447.

36. On Wounds and Injuries of the Eye. By W. W. Cooper, F. R. C. S. E., &c. London: Churchill, 1859. 8vo. pp. 330.

37. On Diphtheria: its History, Symptoms, Treatment, and Prevention. By Ernest Hart, Surgeon, &c. London: Churchill, 1859. Reprint, 12mo. pp. 36.

PERIODICALS WITH WHICH THE DUBLIN QUARTERLY JOURNAL IS EXCHANGED.

GREAT BRITAIN.

1. The British and Foreign Medico-Chirurgical Review and Journal of Practical Medicine. Published Quarterly. London: Churchill. (Received regularly.)

2. The Edinburgh Medical Journal. Published Monthly. Edinburgh: Sutherland and Knox. (Received regularly.)

3. The Retrospect of Medicine, being a half-yearly Journal, containing a retrospective View of every Discovery and practical Improvement in the Medical Sciences. Edited by W. Braithwaite. London: Simpkin and Co. (Received regularly.)

4. The Half-Yearly Abstract of the Medical Sciences, being a practical and analytical Digest of the principal British and Continental Medical Works, &c. Published Half-Yearly. Edited by W. H. Ranking, M. D., and C. B. Radcliffe, M. D. London: Churchill. (Received regularly.)

5. Pharmaceutical Journal and Transactions. Published Monthly. London. Edited by Jacob Bell. (Received regularly.)

6. The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Published Monthly. London: Taylor and Francis. (Received regularly.)

7. The Lancet. A Journal of British and Foreign Medicine, Physiology, Surgery, Chemistry, Criticism, Literature, and News. Edited by Thomas Wakley, Surgeon. Published Weekly. London. (Received regularly.)

8. Medical Times and Gazette. Published Weekly. London: John Churchill. (Received regularly.)

9. Association Medical Journal. Edited by A. Wynter, M. D. Published Weekly. London: Honeyman. (Received regularly.)

10. The Medical Circular. Published Weekly. London: Harris. (Received regularly.)

11. The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. Published Quarterly. London: Churchill. (Received regularly.)

12. The Asylum Journal of Mental Science. Edited by J. C. Bucknill, M. D. London: Longmans. (Received regularly.)

13. The Glasgow Medical Journal. Published Quarterly. Griffin and Co. (Received regularly.)

14. The Athenæum—Journal of English and Foreign Literature, Science, &c. Published Weekly. London. (Received regularly.)

15. The Dublin Medical Press. Published Weekly. (Received regularly.)

16. The Dublin Hospital Gazette. Published twice a Month. (Received regularly.)

17. The Natural History Review: including the Transactions of the Irish Natural History Societies, and of the Geological Society of Dublin. Published Quarterly. Dublin: George Herbert. (Received regularly.)

INDIA.

18. The Indian Annals of Medical Science; or, Half-Yearly Journal of Practical Medicine and Surgery. Calcutta: Lepage and Co. (Received regularly.)

19. Transactions of the Medical and Physical Society of Bombay. Printed at the Bombay Education Society's Press. (Received regularly.)

AUSTRALIA.

20. The Australian Medical Journal. Melbourne: Buzzard. Published Quarterly. (Received regularly.)

AMERICA.

21. The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D. Published Quarterly. Philadelphia: Blanchard and Lea. (Received regularly.)

22. The North American Medico-Chirurgical Review. A Bi-monthly Journal. Edited by S. D. Gross, M. D., and T. G. Richardson, M. D. Philadelphia: Lippincott and Co. (Received regularly.)

23. The New York Journal of Medicine. Edited by Stephen Smith, M. D. Published Monthly. New York. (Received regularly.)

24. The American Journal of Science and Arts; conducted by Professors Silliman and B. Silliman, Jun., and J. D. Dana, &c. Published Bimonthly. New Haven. (Received regularly.)

25. The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica, Quarterly. (Received regularly.)

26. The American Journal of Dental Science. Edited by C. A. Harris, M. D., and A. S. Piggot, M. D. Published Quarterly. Philadelphia: Lindsay and Blakiston. (Received regularly.)

27. Charleston Medical Journal and Review. Published Monthly. Charleston, U. S. (Received regularly.)

FRANCE.

28. Gazette Médicale de Paris. Published Weekly. Paris. (Received regularly.)

29. Gazette Hebdomadaire de Médecine et de Chirurgie. Published Weekly. Paris: Victor Masson. (Received regularly.)

30. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue des nouvelles, scientifiques, nationales et étrangères, &c. Published Monthly. Paris: Labé. (Received regularly.)

31. Journal de Pharmacie et de Chimie, &c. Published Monthly. Paris: Victor Masson. (Received regularly).

32. L'Union Médicale, Journal des intérêts scientifiques et pratiques, moraux et professionels du Corps médical. Published three times a Week. Paris. (Received regularly.)

33. La Lancette Française, Gazette des Hôpitaux civils et militaires Published three times a Week. Paris. (Received regularly.)

34. Le Moniteur des Hôpitaux, Revue Médico-Chirurgicale de Paris. Redacteur en chef, M. H. de Castelnau. Paris. Published three times a Week. (Received regularly.)

35. Revue Médicale Française et étrangère, Journal des Progrès de la Médecine Hippocratique. Published twice a Month. Publié par le Docteur Sales-Girons. Paris. (Received regularly.)

36. Archives Générales de Médecine; Journal Complémentaire des Sciences Médicales. Published Monthly. Paris: Labé. (Received regularly.)

37. Bulletin de l'Académie de Médecine. Published Monthly. Paris: Baillière. (Received regularly.)

38. Mémoires de l'Académie de Médecine. (Received regularly.)

39. Revue de Thérapeutique Médico-Chirurgicale. Published twice a Month. Paris: Dr. A. Martin-Lauzer. (Received regularly.)

40. Journal de Médecine et de Chirurgie Pratiques a l'Usage des Médecins. Published Monthly. Par Lucas-Championnière. Paris. (Received regularly.)

41. Journal des Connaissances Médicales pratiques et de Pharmacologie. Published every ten days. Paris. (Received regularly.)

42. Annales Médico-Psychologiques. Par MM. Baillarger, Cerise, et Moreau. Published Quarterly. Paris: Victor Masson. (Received regularly.)

43. Bulletin Général de Thérapeutique, Médicale et Chirurgicale. Recueil pratique. Par le Docteur Debout. Published twice a Month. Paris. (Received regularly.)

44. Repertoire de Pharmacie. Recueil pratique. Par M. le Dr. Bouchardat. Published Monthly. (Received regularly.)

45. Gazette Médicale de Strasbourgh. Published Monthly. (Received regularly.)

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48. L'Union Médicale de la Gironde. Bordeaux. Published Monthly. (Received regularly.)

49. Annales D'Hygiène Publique et de Médecine Légale. Paris. Published Quarterly. (Received regularly.)

50. Gazette Médicale de Lyon. Dirigée par le Dr. P. Diday. Published Bi-Monthly. (Received regularly.)

51. La Clinique Européenne: Journal International de Médecine. Redacteurs en chef, le Dr. Kraus à Vienne et le Dr. Pichler à Paris. Published Weekly. Paris. (Received regularly).

BELGIUM.

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GERMANY.

54. Zeitschrift für rationelle Medicin; herausgegeben Von Dr. J. Henle und Dr. C. v. Pfeufer. Published Monthly. Heidelberg and Leipzig: C. F. Winter. (Received regularly.)

55. Zeitschrift der Kais. Kön. Gesellschaft der Aerzte zu Wien. Redacteur: Professor, Dr. Ferdinand Hebra. Vienna: Gerold. (Received irregularly.)

56. Vierteljahrschrift für die praktische Heilkunde, herausgegeben vol. der medicinischen Facultät in Prag. Published Quarterly. Prague: Karn André. (Received regularly.)

57. Canstatt's Jahresbericht über die Fortschritte der gesammten Medicin in allen Ländern. Redigirt von Pr. Scherer, Pr. Virchow, und Dr. Eisenmann. Würzburg: Stahel. (Received regularly.)

58. Journal für Kinderkrankheiten. Herausgegeben von Dr. Fr. J. Behrend und Dr. A. Hildebrand. Published Monthly. Erlangen: Palm and Enke. (Received irregularly.)

59. Wochenblatt der Zeitschrift der Kaiserl. Königl. Gesellschaft der Aerzte zu Wien. Published Weekly. Vienna: Gerold. (Received regularly.)

60. Aerztliches Intelligenz-Blatt. Organ für Bayerns Staatliche und öffentliche Heilkunde. Munich: C. Kaiser. (Received regularly.)

PRUSSIA.

61. Archiv für pathologische Anatomie und Physiologie, &c., Herausgegeben von R. Virchow. Berlin: G. Reimer. Published Monthly. (Received regularly.)

HOLLAND.

62. Archiv für die Holländischen Beiträge zur Natur- und Heilkunde. Herausgegeben von F. C. Donders, Utrecht, und W. Berlin, Amsterdam. Utrecht: Kemink and Zoon. (Received regularly.)

NORWAY.

63. Norsk Magazin, for Lægevidenskaben, udgivet af det medicinske Selskab i Christiania. Redigeret af W. Boeck. Faye. A. W. Münster. Lund. Voss. Published Monthly. Christiania: Feilberg & Landmark. (Received regularly.)

SWEDEN.

64. Hygiea, Medicinsk och Pharmaceutisk Månads-Skrift. Published Monthly. Stockholm. (Received regularly.)

DENMARK.

65. Bibliothek for Læger. Udgivet af Direktionen for det Classenske Literaturselskab. Redigeret af Dr. E. Dahlerup. Copenhagen: Reitzels. (Received regularly.)

ITALY.

66. Gazzetta Medica Italiana Federativa Toscana. Florence. Published Weekly. (Received regularly.)

67. Bulletino delle Scienze Mediche. Publicato per cura della Società Medico-Chirurgica di Bologna. Published Monthly. (Received regularly.)

68. Giornale Veneto di Scienze Mediche. Published Monthly. (Received regularly.)

NOTICE TO CORRESPONDENTS.

Books and Periodicals published in Northern Europe and the German States, intended for our Journal, should be transmitted "For the Editor of the Dublin Quarterly Medical Journal, care of Messrs. Trübner and Co., London," *through their Correspondents* in the principal Towns on the Continent. Our Correspondents in France, Belgium, Italy, and Spain, are requested to communicate with us through "Doctor Higgins, 212, Rue Rivoli, Paris."

The Lithographs which illustrate Dr. Williamson's paper having been executed and printed in London, an irregularity in the numbering of the Plates has occurred. They are referred to in our pages according to the numerical arrangement which they occupy in our present Volume, while the Lithographer has numbered them in the regular series as he printed them—I., II., III. Hence, the reference in the text to Plate VI. must be taken as referring to Plate I.; that to Plate VII. as to Plate II.; and that to Plate VIII. as to Plate III. The fourth Plate, referred to in the text as Plate IX., has not been executed by the Lithographer in time for our present Number, but will be given in our next. Plate V. is illustrative of the case of "gunshot wound of the small intestine," described at p. 355.

The binder will, therefore, place these five Plates as follows:—

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THE DUBLIN

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

FEBRUARY 1, 1859.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Reports in Operative Surgery.* By RICHARD G. H. BUTCHER, Esq., M.R.I.A., F.R.C.S.I., Examiner in Surgery in the Royal College of Surgeons in Ireland; Surgeon to Mercer's Hospital; and Lecturer on Clinical Surgery, &c., &c.

1. REMARKS ON "BUTCHER'S OPERATION" FOR EXCISION OF THE WRIST-JOINT AND CARPUS, ILLUSTRATED BY CASES.
2. A THIRD SUCCESSFUL CASE OF EXCISION OF THE KNEE-JOINT.
3. ANOTHER SUCCESSFUL CASE OF EXCISION OF THE ELBOW-JOINT, IN WHICH AN UNUSUALLY LARGE AMOUNT OF BONE WAS REMOVED.
4. SUCCESSFUL CASE OF PARTIAL RESECTION OF THE ELBOW-JOINT.
5. SYME'S AND PIROGOFF'S OPERATIONS AT THE ANKLE-JOINT.
6. SYME'S OPERATION AT THE ANKLE-JOINT; RECOVERY.
7. PIROGOFF'S OPERATION AT THE ANKLE-JOINT, IN WHICH SYME'S HAD TO BE SUBSTITUTED; RECOVERY.

8. EXCISION OF A LARGE PORTION OF THE LOWER JAW, FOR AN OSTEO-VASCULAR TUMOUR; INTERMEDIARY HEMORRHAGE CONSIDERED; PERFECT RECOVERY.

9. SUCCESSFUL EXCISION OF THE METATARSO-PHALANGEAL ARTICULATION OF THE GREAT TOE.

In the British and Foreign Medico-Chirurgical Review for October, 1857, will be found a very able article "On Resection of large Joints." The subject-matter being derived from the perusal and analysis of numerous books and essays, I subjoin in a note[a] the names and titles attached to them, because they are a vast number produced within a very limited period, comprised in even so short an epoch as two years. This fact speaks of itself as a mighty evidence, confirmatory of the inquiry aroused—the interest excited by the great characteristic feature distinguishing the surgery of the day, Conservatism.

In addition to these, numerous communications, some of them of a most valuable character, upon the subject of resection as applied to the several joints, have appeared during the past year, illustrated by cases and practical observations, in "The Medical Times and Gazette," "The Lancet," "The Edinburgh Monthly Journal," and the "Dublin Quarterly Journal of Medical Science;" and finally, I cannot pass over Mr. Fergusson's Surgery, the recent edition of which gives a condensed and valuable epitome of this most interesting matter.

I would again call the attention of the reader to the "Review on Resection of Large Joints;" it will well repay a careful

[a] On Resections and Amputations; with four lithographic plates; p. 269. By Dr. J. F. Heyfelder, Professor of Medicine at Erlangen. 1855.

Contributions on the Subject of Resections at the Foot. By Dr. Robert, of Coblentz. 1855.

Dissertation on Resection of the Shoulder and Elbow-Joints. By P. G. Kyriakos. 1854.

Dissertation on Resections of the Elbow-Joint. By Albert Tobold. 1855.

On Excision of the Knee-Joint. By R. G. H. Butcher, Esq., M. R. I. A., Surgeon to Mercer's Hospital. Dublin Quarterly Journal, May, 1855, p. 66.

On Excisions of Joints. By the same Author. Dublin Quarterly Journal, November, 1855, p. 40.

Second Memoir on Excision of the Knee-Joint. By the same Author. Dublin Quarterly Journal, February, 1857, p. 70.

Cases of Operation upon Diseased Joints. By W. A. Green, M. D., Bengal Medical Service. 1855.

Gun-shot Fractures, by Dr. Stromeyer; and Resection in Gun-shot Injuries, by Dr. Esmarch, p. 120. Translated by S. F. Statham. London: 1856.

On Excision. By Surgeon Thornton, 9th Regiment. Medical Times and Gazette. 1856.

On Excision of the Hip-Joint. By Mr. Hancock. Lancet. 1857.

perusal; the trust committed to the writer's hands has been dealt with in a comprehensive way, in a spirit of truth.

The operation at the shoulder, the elbow, and the wrist, are each made the subject of comment and observation; and, next in succession, follows the resection of the hip, the knee, and ankle-joints, treated in a similar way. I cannot but feel very deeply sensible of the high honour conferred upon myself, in having my humble efforts appreciated by the able writer, as given expression to in this valuable communication to surgery. In the same spirit I am sure he will bear with me for a moment, while I call attention to one of the subjects under review. I allude to excision of the wrist-joint. It is true that allusion has been made to the case of an old woman aged 58, from whom I excised the wrist-joint, and who died of cerebral effusion. I conceive, however, it should have been mentioned that the woman would not submit to amputation, and as a *dernier ressort* I was compelled to take away the source of irritation. In my paper on Excision of Joints[a] it is thus expressed: "Now, so extensive was the local disease, and so fearful the constitutional symptoms evoked by its presence, that the taking away of the source of irritation was absolutely called for, so as to afford a chance of life being preserved under the circumstances. I mentioned the operation of excision, and dwelt upon its propriety, and, if rejected, as a *dernier ressort* amputation through the forearm. The woman at once made up her mind not to lose the hand, and anxiously expressed a wish that I would endeavour to save it by cutting out the diseased bones." The patient lived for seven days. And further, it is stated in my Report:—"Up to this period, the 9th" (being operated on on the 2nd of the month), "the patient seemed to be going on most satisfactorily, when suddenly symptoms of effusion in the brain came on, rapidly indeed, and without premonitory symptoms; she quickly became comatose, and died in a few hours." And further (at page 15),—"By some it may be asked, why was the character of an operation, so new in itself, risked in a case so unpromising, in a patient *so advanced in life?* My answer simply is, the patient would not submit to amputation, while she willingly agreed to the proposition of resection. The latter was, with my full approbation, acceded to. I could not bring myself, without any valid reason, to condemn the limb, and, as it were, to exclude this creature without the pale of modern surgery; and from an impartial view of the case, in all truth, I protest that the particular operation practised had

[a] Dublin Quarterly Journal, November, 1855, p. 13.

no more to do with her death than as it might have occurred after simple amputation of the forearm. There was no shock; all the vital actions for days seemed well balanced; and there was no local manifestation of mischief; on the contrary, repair had rapidly advanced. The post-mortem appearances, as already mentioned, pronounce the cause of death, such as every practical surgeon must be conversant with; this sudden and rapid effusion, either into the head or chest, will sometimes frustrate his best efforts after operation in the *old* and *young*, in the latter particularly when a scrofulous taint exists." The foregoing case was headed in my paper, "Excision of the Wrist-Joint and Carpus by a new Operation," and it is most pleasing to me to learn that it has been favourably received. According to my views, we should have also included under the head "resection of large joints," excision of the carpus together with portions of the metacarpal bones, because in reality the same operative measures—at least the chief and important proceedings—are required, as if the extremity of the radius and ulna were likewise clipped or sawn away; in other words, the same cautious division and elevation of flaps, dissection out of soft parts, tendons, and avoidance of vessels, are required in either case to the perfection of the end,—the preservation of a useful hand. And, as mentioned in the Quarterly referred to, I shortly after brought this *new operation* of mine for excision of the wrist-joint to the test, when I cut out the carpus, together with the carpal ends of two of the metacarpal bones, with the most successful result. In the Number referred to, the case is fully detailed, as also the method of operation. And I shall here make a few remarks as to the present state of the man, introduce a drawing of the appearance of the hand, and likewise a *fac simile* of a letter which he wrote to me a few days since. The hand occasions no pain, and requires but little protection from external agents, being able to resist violence as well as the sound one; the contour and outline of the organ are not spoiled, nor its beauty much defaced; of course, a scar marks the course of the surgeon's knife, and the fingers are a little bent; but, in the attitude represented in the lithograph, little alteration is manifest as contrasted with the sound limb, and when relieved from this posture the motions of the thumb are so rapidly performed that it would require a very critical examination to detect any change from the normal condition and the perfection of its functions. The man has been earning an ample independence for many months back, and in an occupation where the serviceability of the member could not be dispensed with. He now fills a situation of

No 5 Moland Place

Sir Dublin December 1st 1858

I take the liberty of addressing the following few lines to you for the purpose of acknowledging my most sincere and heartfelt thanks to you for restoring to me the hand which some time ago I wanted you to take off but thanks be to God and you is now quite well and I am able to earn my bread with it

I am sir your obt Svt

to William Moran

Richard J H Butcher Esqr

trust, and to discharge the duties of his office it is essential he should be able to write; this he can do, quite well enough to give satisfaction. I shall not offer another word of comment; let the following exposition attest the value of the operation, —it is the lithographed letter (see Plate I.).

The advantages which my new operation for excision of the wrist-joint and carpus possesses over every other are thus expressed:—"The operation which I think best suited to those cases is the one which I put in practice myself. It meets every objection which has been urged against the measure, and to which I have already alluded. Mr. Stanley's operation is somewhat similar; but mine is superior, inasmuch as the tendons of the muscles of the thumb are not divided or disturbed from the soft tissues which immediately surround them, and are thereby protected from sloughing and death; so that all the motions of the member in its integrity can be preserved. No doubt, after excision of the wrist-joint and carpus, much motion cannot be expected; a firm fibro-ligamentous structure fills up the place of the removed bones, and fuses the surrounding textures into its dense tissue, and mats all together. But, according to my views, the hand may be retained nearly as useful as ever; the fingers being kept semi-flexed during the process of repair, they retain this position, and the thumb, being preserved perfect in its motions, readily approximates either of the fingers, so that the hand can be applied to its most delicate uses, such as writing, sewing, &c., as well as to the most severe and common-place, using implements for husbandry, grasping bodies, &c." Numerous cases bearing upon this mode of dealing with the matter are given, illustrative of its beneficial effects, in the paper already referred to, published in the Dublin Quarterly Journal.

I shall offer no apology for again making some comments on resection of the knee and elbow. The cases which I adduce are additional evidences of the value of this special operation; but, more than that, there are peculiarities attached to each, both in history, operation, and treatment, most interesting, I conceive, to the pathological inquirer, as well as serviceable to the practical surgeon. And first stands upon the list my third successful case of excision of the knee-joint.

Case I.—*A third successful case of Excision of the Knee-Joint, in which the "drainage system" of Chassaignac was applied; the first instance; further cautions with regard to adjusting the cut parts; recovery, with an admirable limb.*

Mary Carey, aged 15 years, admitted into Mercer's Hospital on the 4th of January, 1858. *History.*—The infliction of the injury, which was supposed to originate the disease of the knee-joint in this case, dates so far back as seven years. When the child was only eight years of age, she was thrown down by a playfellow, when returning from school, and her right knee was violently wrenched, and bruised against the curbstone of the pathway. She was supported home, and remained confined to bed and to the house for several days after. The recovery from this primary injury was slow and unsatisfactory, though the usual remedies—stuping, leeching, &c.—were employed; slow, because several days passed by with but little amendment; unsatisfactory, because a lingering pain and uneasiness, upon very trivial exertion, settled in the part. Months passed over, and years elapsed, and upon various occasions accessions of suffering were aroused, and were again quieted and subdued by surgical interference, both when in her attendance as an external patient at several hospitals, and more particularly while an internal recipient of their advantages. Still the disease progressed up to the date which I have recorded of her admission into Mercer's Hospital under my care. A glance at the patient told the sad tale, that a corroding cause was hastily sapping the springs of life. A few words, a cursory examination, pointed to the source. The very attitude of the patient betokened the part. As she sat upon the bed, the thigh was flexed, the leg could not be extended, but the foot rested steadily upon its sole, and guardedly did the sufferer, with both attenuated hands, steady it in this position, so as to prevent any wabbling or lateral motion. The outline of the extremity, as it thus rested, showed not only the wasted condition of the member, but likewise very clearly the distorted condition of the knee-joint. The projecting condyles of the femur were tilted upwards; while it was equally apparent that the tibia had receded, or, in other words, was drawn backwards into the popliteal space. The natural contour of the joint was lost; it was squared in front; and this arose from the puffed out and thickened synovial membrane at either side of the ligamentum patellæ. The distortion of the limb was rendered greater from the fact that where the tibia passed backwards, it was, together with the foot, rotated outwards. There

were no sinuses or breach of the integuments surrounding the joint; neither was there much discoloration at any point. The extreme rotation of the leg outwards, the displacement of it backwards, pointed to that condition of the interior of the joint which permitted so extensively such misapplication of the articular surfaces of the bones—the total disintegration of its fibrous connexions, check ligaments, &c. On the slightest manipulation this state of parts was confirmed, for the leg could be moved in one direction, and the thigh in another, each being grasped by the right and left hand of the surgeon. An antero-posterior motion of one bone upon the other could likewise be demonstrated by altering the forces. None of these efforts could be even attempted without the greatest apprehension, as depicted in the terror of the patient; and a realization of the extent of such motion could not be effected without loud and prolonged screams of suffering. Resulting from such an examination, the grating of the carious bones one upon the other afforded unmistakeable evidence of the widespread and destructive implication of the articular surfaces. The popliteal space was filled by the displaced tibia, but far lower, and beneath, projected the strained hamstrings, tense, firm, and unyielding, rigorously preserving their spastic contraction. There was full evidence, too, of the synovial membrane of the walls of the joint having undergone total change: it was thickened, elastic, puffy at either lateral boundary of the patella, giving an indistinct sense of fluctuation, most deceptive as to the presence of matter, but sufficiently characterised by a peculiar resiliency, at once recognisable from suppurative accumulations by the educated touch. The prominence of the outer wall considerably exceeded that of the inner, and over this locality, too, the tenderness upon pressure was most manifest. Consequent upon the presence of this very extensive local change, the health of the creature was greatly broken up; pain, in a subdued form, was never absent for many months, and at some times was of the most excruciating nature; as described by the patient, "often a boring, burning pain made her scream out in distress." Her sufferings were always increased by any motion of the parts, and the repeated startings, and spasms, and cramps of the entire limb occasioned watchful nights, unwearied restlessness, and apprehension, with, frequently for successive hours, the total absence of sleep. Healthy digestion was entirely interfered with; the appetite gone; there was great emaciation present, and a bewildered look of excitement and fear was stamped upon the countenance; age, far beyond the years of the child, was stereotyped there. Irritation had

done its worst, and hectic followed upon its ravages, marked by an accelerated and rapid circulation, frequent attacks of diarrhœa, chills and burning, and profuse sweating. These reduced the sufferer to that condition which compelled her friends to bring her to hospital, and willingly submit her to any mode of treatment that might be considered requisite to save her life. In this state, then, she was admitted under my care, and certainly no combination of symptoms could have presented a more unpromising result.

Upon instituting the most careful investigation of every fact in relation with the case, at the same time making the most cautious examination of the diseased joint, as to extent of bone disease, the implication of parts around, &c., and, above all, the condition of vital organs, as far as in my power lay, I came to this decision—the propriety of excising the joint. There were no sinuses, there was no breach of surface by which the aid of the probe could be brought into requisition. The inference as to the propriety of the measure was arrived at from the combined local and constitutional evidence already alluded to.

On the 11th of January I excised the joint, adopting the H incision; quickly the soft parts were divided and reflected, and cautiously they were freed from the bones behind. The ligamentous structures within the joint, the cartilages of incrustation of the three bones, were entirely removed, and the contiguous surfaces of the bones most extensively destroyed. The condyles of the femur were hollowed out and eaten away to about an inch in extent, while the surface of the tibia was also deeply excavated, corresponding to each condyle, the intervening part being irregularly removed; the patella was also deeply carious, hence I removed it at once from the upper flap. The diseased extremity of the femur was cut with the saw invented by myself, and the section made from behind forwards; and so likewise the unhealthy surface of the tibia. The section of the femur revealed a beautifully healthy aspect, while the section of the tibia showed a softened irregular patch, about the size of a shilling, with a vascular fringe running round its confines, and separating it from the healthy bone outside. This appearance occasioned me to cut off another slice from the tibia, somewhat more than a quarter of an inch in thickness, and the section exposed a perfectly healthy condition, the normal arrangement of the bone. In all, there were about three-quarters of an inch or a little more of the tibia removed, and an inch and a half of the femur. The divided blood-vessels were small; no ligatures were required; and I at

once placed the limb in the extended position, resting upon its posterior surface in the apparatus which bears my name. Let it be borne in mind, that previous to the operation the leg was considerably flexed, and the hamstrings rigidly contracted. This condition offered serious opposition to the required posture at first, but by gentle, steady, and gradually increased force, they were compelled to yield. Now, in the adjustment of the bones, there is one practical point which I have not before alluded to, neither is it noticed, so far as I am aware, by any writer on this subject; namely, the caution that is requisite, when straightening the limb, *to guard against any portion of the soft parts behind projecting forwards, and thus interposing between the bones.* Such an occurrence took place in this instance during my first efforts to get the limb into a horizontal posture, but I perceived and rectified it at once; however, it might be easily overlooked, and I have no doubt would interfere in a very material manner with the firm union of the bones, or their growth into each other—a consummation so ardently sought for in these cases. Now this untoward circumstance may be guarded against by the following manœuvre: namely, to adjust accurately, while the leg is yet flexed, the posterior margin of the cut surfaces of the tibia and femur, and while the sharp edge of one rests upon that of the other, the tibia and femur are gently forced backwards until the opposed surfaces rest fairly against each other. During this manipulation, then, the bones are pressed up firmly against each other, as well as with an equal force backwards. By this precaution the interposition of any softened structure will be effectually prevented. After this manner, then, the bones were fairly applied to each other, and afterwards the flaps laid down. They were brought together throughout the transverse incision by a few points of the interrupted suture, while some folds of lint were laid in the lateral ones, the object being two-fold: first, to prevent any immediate flow of blood; and secondly, at a later period, to permit a free escape from the part, so that purulent matter should not be pent up; the front splint was laid down, and each side of the box was then lifted, and an additional compress of lint placed over the wound at either side, so that an even, equable support was given, maintained. During this entire adjustment, from first to last, the leg was pressed up against the thigh; and, to secure it in this position, the foot-board slid into the grooves for its reception was most efficient, steadying the foot also at a right angle with the leg. An additional pad, wedge-shaped, was placed at the outer ankle, and projecting upwards, so as to maintain the

foot in a straight line, and prevent any drooping outwards or eversion. The straps were then buckled round the box, and the patient, still under the influence of chloroform, removed carefully to bed. She, however, quickly awoke from her sleep, quite unaware that the operation had been performed.

I have not considered it necessary to dwell at any length upon the various steps of this operation; the various ways in which the flaps may be made, or the extent to which the knife should be used; the advantages of sawing the bones from behind forwards, and especially their line of section with the instrument bearing my name; the benefits arising from at once placing the limb in position; the modes of dealing by subcutaneous section with the hamstrings in particular cases; the special benefits which arise from the adoption of my mechanical appliance in the after management of the limb, from first to last, if I may so express myself, from the section of the bones to their final growing into each other, or permanent union;—these several questions have been all most thoughtfully considered in the several memoirs and papers which I have written upon this special operation in the past Numbers of this Journal[a]. Immediately after consciousness was restored, the patient vomited freely; by no means an unusual consequence after the inhalation of chloroform. She got wine and opium at intervals, which soon quieted the stomach, and about 4 o'clock she fell into a quiet sleep.

9 P.M. In the later part of the day she took a cupful of beef-tea, which staid upon the stomach; opium and wine to be continued through the night. She does not complain of pain in the limb, and it rests quite undisturbed.

January 12th. Through the night she had occasional twitches of pain, but not sufficient to prevent sleep; indeed, the repetition of the opium invariably quieted the threatenings of suffering; the wine was also taken steadily; the limb lay just as when put up. There was some slight œdema of the leg, evidently produced by the undue pressure exerted upon the lateral aspects of the knee by the additional compresses in the longitudinal wounds, and the pressure from before exerted by the anterior splint; yet there was no constitutional annoyance or local distress sufficient to call for any interference with the mechanical restraint.

Early even as this day, we had signally marked the beneficial effects of the operation. Unmistakeable evidence was afforded by the lowering of the pulse; the total arrest of night-

[a] Dublin Quarterly Journal, February, 1855; February, 1857; November, 1857.

sweats. Hunter noticed this great evidence of the calm induced by appropriate amputation, when great irritation, sensitiveness, and fever, signalized the presence of a joint irreparably seized upon by disease; and the aphorism of this great man remains the same now as when penned or first given to the world.

13th. She slept almost uninterruptedly; no startings of the limb, or nervous apprehensions about the patient to-day; she is quite cheerful; the tongue is cleaning; the urine in full quantities; the pulse only 90, steady, and with good volume; took some toast and tea; the leg is not more swollen; transverse wound puffed, and at the lateral extremities of it purulent matter and serum are escaping freely. To have beef-tea and wine freely, and ten drops of opium every fourth hour.

14th. She slept well and quietly, the opium being continued through the night, beef-tea and wine also being given. On this morning I placed the patient under chloroform, to examine the parts and partially dress the wounds. The advantage of doing so was very apparent, because, from the quietude imposed, all chance of displacement of the bones was guarded against when the mechanical restraint was slackened off; again it acted most beneficially in preventing that exhaustion necessarily induced by the struggles of a patient suffering under acute pain. The outer side of the box was first let down,—the internal side, the limb, the foot-board, and front splint being carefully steadied in one piece, as it were. I cautiously separated the pledget of lint placed over the external incision, and, there being no oozing of blood, the side support was elevated. With similar precautions the internal side of the box was let down, and the inner wound dressed; a part of the compress was adherent in the wound; so much was permitted to remain, and all the rest cut away—a measure far preferable to having recourse to that violence necessary for its separation. It may be said, why not soften it with water, and detach it with gentleness. I did not think such efforts advisable, because, if hemorrhage was brought on in any degree, the means necessary for its suppression might have risked the quietude of the limb, and disturbed the reparative process so favourably set up, and perfecting its earlier stages. After the same manner the internal side of the splint was restored to its position, together with the front splint, and all retained, as before, by the straps and buckles. The patient quickly returned to consciousness, the inhalation of the chloroform being stopped.

15th. Slept well; complains of no pain; occasional doses of opium; wine and beef-tea freely.

20th. Since last report she is greatly improved both in appear-

ance and in strength, and she sleeps now without an opiate; appetite sharp for animal food; no sweats; pulse 86; bowels and kidneys acting regularly. The limb has not been disturbed at all, and it rests quite in a state of repose. The œdema of the leg has vanished, proving the correctness of the view already expressed as to its presence; there is no swelling nor redness; no cramps, no startings, and no undue force acting anywhere; the pressure from behind forwards is so gentle, so accurately regulated, that all secretion from the lateral wounds finds its way forwards, and is there sopped up with a piece of sponge as quickly as it appears.

22nd. Owing to the patient complaining of "scalding" at the sides of the wound, I was induced to remove the dressings; crowds of maggots were crawling about, giving occasion to the uneasiness referred to. The patient was placed under chloroform, and I removed all the dressings, holding up the limb myself, steadily and rigidly, with my right hand grasping the thigh, and the left the leg above the ankle, keeping the former gently backwards, and the latter rather forwards, with a compressed force pressing the cut surfaces together; and thus their adjustment was undisturbed; the box, prepared with fresh pillows, &c., was again slipped beneath, and all readjusted as before, with the greatest comfort to the little patient; when fully aroused from the effects of the chloroform, an opiate was administered.

23rd. Slept all night; no pain or annoyance of any kind; no sweats; no restlessness; pulse 80, soft; appetite good; healthy purulent discharge freely from the lateral wounds, anterior one healed.

25th. Let down side splints, and replaced folds of linen, and cut out all stitches; transverse wound entirely healed, and lateral ones looking quite healthy, with florid granulations, and pus not over-abundant; sleeps and eats well; union between the bones become quite steady.

February 6th. Going on most steadily in every respect, on the 18th, however, was compelled to open a very large abscess, extending up along the biceps muscle; it gradually improved up to April 20th, when suddenly, in opposition to the most careful dressing, the equable support of pads, &c., the abscess seemed to pass gradually upwards, even to the very trochanter, with distinct fluctuations in front of it; by the introduction of a probe, it was evident that this was one uninterrupted track from the external wound, and having confidence in Chassaignac's method of treatment, according to his directions I conducted a draining tube from one end to the other of the thigh, so as

to facilitate the escape of all secretions. I believe this to have been the first application of the means "drainage" in the management of those extensive abscesses so frequently noticed as occurring after excisions. After the introduction of the tube, the limb was very lightly rolled and steadied as before; but little constitutional excitement followed this novel mode of treatment; though apparently severe, yet, when cautiously and expeditiously done, but little shock is occasioned. On the 25th there was a striking improvement; the discharge being in a very remarkable way lessened, and what was secreted freely flowed off by the tubing: the gentle bandage support tended to this favourable sequence. Coexisting with this amended local change was a striking subsidence in the constitutional derangement: the appetite was better; the sleep was improved, it was quiet and undisturbed; the sweats had ceased, they were checked. During the several days, the consecutive weeks, which followed up to the 1st of June, steady, progressive amendment was prominently marked, so much so that I withdrew the drainage tube, there being scarcely a drop of fluid conducted by it, so contracted was the interior of the pyogenic cyst, and so completely consolidated were the parts around; on taking it away, a few drops of blood flowed, showing how closely applied to the foreign body were the healthy granulations which sprung up from the walls within, embracing it in the long track through which it traversed; but it well fullfilled its office, and the time had arrived for its removal. The limb was afterwards supported by the circular turns of a long roller, and steadied on a splint applied to its posterior surface, and retained as before; the apertures above and below were left uncovered; the bandage was not permitted to rest upon them, thereby allowing a free escape to any matter or oozing of blood that might take place. So improved did the patient appear in every way, that she was allowed to sit up in bed, being propped by pillows. At the end of the month not a drop of matter from the vicinity of the knee, or the lowest aperture, or lower two-thirds of the thigh, a few drops passed by the upper wound; so improved was the little creature, that she was carried each day into the garden, and allowed to sit or recline upon a couch, as her feelings suggested. By this "great recreation," as she termed it, the improvement in her general appearance was most striking and significant. So matters progressed until the early part of September, when another large abscess formed in the popliteal space, and was opened at this time; soon after, she was attacked with erysipelas of a most serious character, which was prevalent in the next ward, and suddenly seized upon my

patient, attacking the affected limb, passing up along the belly over the thorax, round the back, and down the sound limb; for several days the life of the creature was in most imminent peril; however, by careful management, the due exhibition of wine, bark infusion, and suitable local applications, the disease was stayed, the danger averted. Now so intensely painful was the limb, so great was the swelling, the tension, the heat, pricking and burning of the skin, that the support had to be taken away, the splint from behind, the encircling bandage to assist the enfeebled capillaries, the retentive bandages without,—all had to be taken off; and yet so efficiently had nature done her work, assisted by the science and art of surgery, that the connexion between the thigh and leg remained a permanent bond, a rigid union. No untoward result followed this very trying crisis, and even now (the 12th of October), though the storm has not yet entirely subsided, yet the limb remains as straight as before its coming on, and she even now possesses the power of lifting it *en masse* from the bed, or rotating it in its acetabular socket. Shortly after, even the small discharge ceased, and now only two or three drops can be pressed out. The result which I have detailed here, though I think not noticed by writers, I have before observed in cases of extensive abscess, deep-seated in a limb: when erysipelas of a serious nature has attacked the part, it finally terminates in altering the action of the secreting surface, evidently from its powerful derivative effects, and establishes the basis of a change, *permanent* in itself, that quickly goes on to repair and cure, altogether different from the *temporary* drying up of surface sores when erysipelas seizes on them.

During the last fortnight she had been walking about the wards, with the aid of crutches at first, but now only a light stick is used, more as a preventive against slipping or injury, than as an essential for support. The limb is beautifully straight and well formed, stiff and rigid at the knee; no pain at any part when resting the weight of the trunk fully upon it; and it is very remarkable how yielding and obedient the muscles about the hip have become, and how greatly restored the flexion and extension of the ankle-joint—indeed, I think the rapid restoration of its motions is in a great degree due to the position of the foot being steadily maintained throughout the entire treatment at a right angle with the leg. I have before dwelt upon the value of this practical lesson, when writing upon fractures in the vicinity of the ankle-joint[a]. Coincident

[a] Dublin Quarterly Journal, 1852.

with this great local change is the constitutional improvement: the miserable, the pitiable condition already described as marking her state on admission to hospital, has altogether disappeared. As the source of irritation was removed, so the withering results of fever, the striking emaciation, were replaced by a healthier action, a more perfect assimilation, an increase of bulk of the entire body ; and now the little girl has a bright colour, a fresh and cheerful expression, a tranquil look; health. Numerous complications and dangers assailed this creature's life, but by careful management she has been steered through all; and the result to me is most cheering, and a great recompense for all my trouble.

According to my usual custom, the portions of bone removed, the casts before and after the operation, are placed in my private collection ; and the engraving, Plate II., gives a most faithful picture of the little girl as she stands, this 10th day of December, 1858.

Case II.—*Another successful Excision of the Elbow-Joint, in which an unusually large amount of bone was removed ; Recovery with the most perfect use of the Arm and Hand; Mechanical appliance for putting up the limb.*

Bridget Kilkenny, aged twenty-five years, admitted to Mercer's Hospital January 2, 1858, under my care, by a special recommendation from the country. She laboured under long-continued disease in the elbow-joint. It commenced in November, 1855, without any assignable cause; great pain suddenly set in, accompanied by considerable swelling. By a simple, yet efficacious mode, leeching, poulticing, aperient medicines, &c., persisted in for some time, the urgent symptoms were relieved, that is, their intensity, for the pain never entirely forsook the part; and she suffered and worked, and at some times even when enduring great torture. By degrees the bulk of the joint became greater; its size augmented; its discoloration more developed, and finally, after a slow process of thinning of the parts, they gave way, six weeks before her admission, discharging a copious amount of purulent matter; from this time to her being submitted to my care the secretion continued to be poured out just as abundantly. On the date above registered, her sufferings were very great, and she truly appeared a wretched spectacle: she was haggard, sunken, worn out from persistent pain, from sleepless nights, wearying restlessness, constant spasms and startings in the diseased limb. Her appetite was gone, all relish for food lost; vomiting and emaciation followed, and was rendered more conspicuous from

contrast with the large bony frame of the patient. The limb was inordinately swollen at the affected joint; it measured three times the circumference of the sound limb, and this enlargement stood out in greater relief, owing to the wasted state of the arm, while the forearm was œdematous. A large ulcerated patch was situated on the outer and back wall of the articulation, which discharged synovia and pus abundantly. On introducing a probe by this aperture, it passed freely into the joint, and in traversing this course the olecranon was discovered, exposed, carious, and the interior of the joint rough, uneven, spiculated, and the extremity of the shaft of the humerus reduced to a similar state, thickened and enlarged far beyond. The slightest motion of the joint gave the most excruciating torture; this was guarded against by the patient with the sound limb firmly grasping the enfeebled forearm, and rigidly maintaining it close to the side; her thin, sweaty, œdematously flabby hand remaining in the state of extension. From a careful consideration of these local changes, the wide-spread ravages of disease, the opinion was arrived at that no salutary crisis could be anticipated; that no healthful or reparative change could be brought about; that the interference of the surgeon was absolutely demanded to take away the offending part; to quiet down, to check the constitutional disturbance that threatened life. Though conceded the propriety of adopting operative measures, yet in what that extension of resources consisted, remained a question for deep and anxious consideration; it was one momentous to the sufferer; it was one hazardous to the reputation of the surgeon. Many would have supposed, from a superficial consideration of the case, that amputation of the limb afforded the only resource; and indeed the wide-spread destruction, the extensive implication of the parts within and without the joint, might have given some foundation for so erroneous a view for such an arbitrary measure. However, after a long and pains-taking examination of the part, —of the bones within and the structures without, repeated and investigated with the greatest delicacy and gentleness over and over again,—I was led to the inference, that excision of the diseased parts might with propriety be adopted. An early inquisitiveness in the complications of such cases, reduced and rendered practical by later investigation and deeper inquiry, prepared me to act with decision and promptitude, according to the deductions which I made, the prognosis that I arrived at. The numerous papers on excisions of the knee, the elbow, the wrist, and minor articulations, published in this Journal, most forcibly urged, most strenuously inculcated the propriety

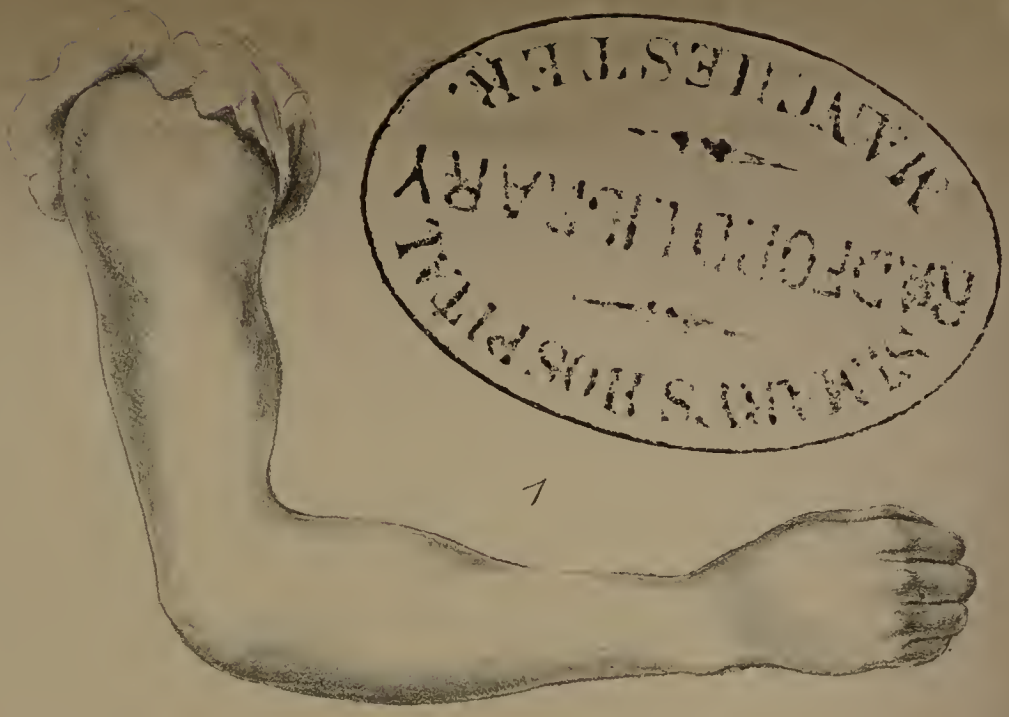
of sedulously avoiding display, and applying alone the operation suited to each case, so that surgery should not be defeated, or the science of the art thrust back by the rashness of her votaries, or the ignorance of her followers.

Some time before the patient left the country, she had been placed under the influence of mercury, gently and steadily administered, but with no good result. On her coming to town, indeed, the effects of it had not entirely passed away; besides, there were other obstacles to immediate operation: the fatigue consequent upon a long journey; and the natural monthly change was expected in a few days. So it was not until the 18th of the month that I was enabled to put in practice the operative measures suggestive of preserving a serviceable limb. On this date, then, I excised the joint after the following mode:—

The patient being placed in the horizontal posture on the operating table, she was quickly brought under the influence of chloroform, and then gently rolled over on the left side, so as to enable me to act upon the right elbow-joint with the greatest facility and ease. An assistant steadied the arm, and had the brachial artery, if necessary, under control, while a second steadied the forearm. In this instance I adopted the H incision, making the internal line first, and that in the course of the inner edge of the olecranon, so that the ulnar nerve was lifted from its bed undisturbed from the soft parts covering it. The cross incision was next made, and that above the olecranon, freely detaching the triceps from that process; room was not afforded by this amount of incision for proceeding, and the H-shaped wound had to be completed by the external longitudinal cut. The flaps being dissected back, the lateral ligaments were divided, and forcible flexion of the forearm made, so as to thrust the bones backwards; the amount of disease revealed was very large. The incrustating cartilage of the extremity of the humerus was entirely removed, and the supporting osseous prominences nearly levelled; caries had eaten away even the outer layers of the bone at its expansion above the condyles, and the soft parts had to be freed from the shaft above this point, and the bone cut from before backwards. In the same way the entire olecranon was diseased, as also the shaft of the ulna where it expands into that process; not only was the articulating extremity thus denuded and carious, but the cartilage of incrustation lining the greater sigmoid cavity was altogether gone, and the bone in many parts deeply removed. The head of the radius was involved in the mischief, its cartilage was in process of ulceration. These several parts

being carefully freed from the attached muscles, the fine blade of the saw, invented by myself for such purposes, was placed in front of the bones, and their section effected from before backwards; thus, the head of the radius was taken away, and the olecranon and a portion of the shaft of the ulna. The extent of the humerus removed measured three inches and a quarter, and that of the ulna, just an inch and three-quarters, together with that amount of the radius corresponding to the section.

On a very careful examination of the osseous sections, healthy structure was in each visible. So carefully was the knife kept to the bones in their detachment, that no vessel of sufficient magnitude to require a ligature was divided; the flaps between which lay the transverse incision were then brought into contact, and retained by four points of interrupted suture; the lateral incisions were left open, and a few strips of dry lint laid superficially in them; the entire limb was then supported in the box which I have used in similar cases. A few words as to its construction, and the "putting of the limb up." The bottom of the box is made in one piece, the part for the support of the forearm being placed at somewhat less than a right angle with that for the arm; the side-pieces are divided at the angle, so that there are four, which let down by hinges, and thereby easily permit the dressing of the wound. The pads being adjusted, the arm was evenly supported throughout, and the forearm and hand rested on its ulnar edge, and steadied in a similar way; the sides were next elevated, and all spaces filled with suitable pads, so that an equable pressure was maintained from the shoulder to the extremity of the fingers. As in the apparatus which I prefer and have figured for controlling the limb after excision of the knee, there is a splint placed in front of the thigh, to control the starting forward of the bone; so, likewise in this apparatus for the upper extremity, there is a splint which must be applied from the acromion above along the outer surface of the arm, and as low as the angle to guard against the starting of the bone outwards, a deformity which it is most prone to assume. This splint, properly padded and laid on, is retained by the web-bands which girth and support the sides of the box, and are buckled on the outside. The annexed engraving shows the adjustment (Plate III.) The dressing of the limb did not take up any length of time, the patient being all the while under the influence of chloroform; thus insensible, she was carried to bed and arranged comfortably in it before consciousness was restored; afterwards she recovered quickly from its somnolent effects, but was teazed by vomiting and prostration, consequences



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which I have frequently seen to arise in some habits. By the free administration of warm wine and opium, this condition was removed; and by 4 o'clock the stomach was quiet, the shock had passed away, the circulation was well established, and the limb lying comparatively easy. Opium and stimulants were ordered to be given freely through the night. On the following morning the prostration was again induced by nausea and vomiting. Prussic acid and morphia after a few doses quieted the stomach; and brandy was administered; at 3 o'clock P. M. a cup of beef-tea was taken with desire.

January 20th. Had a good night, and quiet in every respect. Pulse steady and good: limb in excellent position, and free from pain. Stimulants, opiates, and nutriment freely allowed.

23rd. Readjusted the pads, splint, &c., taking good care to steady the limb, and keep the forearm well pressed up to the arm. The cut ends of the bones are as nearly together as consistent with the rectangular position which they were forced to maintain, thereby rendering as short as possible the fibro-ligamentous union sought for.

25th. Enjoys uninterrupted sleep. Able to partake freely of food, &c. Wounds look quite healthy, and suppuration freely established. Removed the sutures; transverse incisions united throughout.

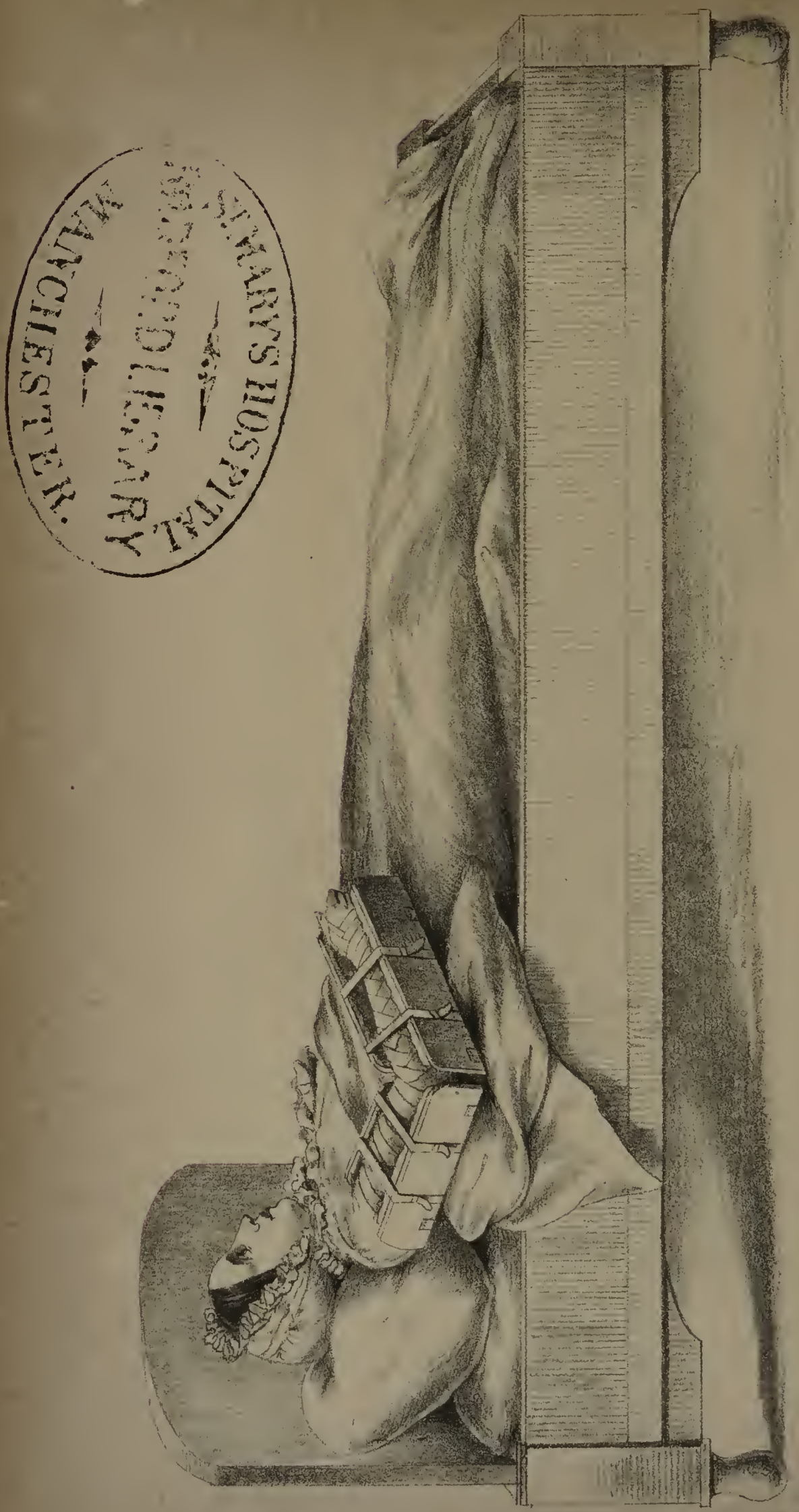
From this date until the 6th of February, nothing remarkable occurred. The limb was dressed after a similar mode to that detailed. Gradually the wounds granulated; the discharge diminished, so that at this date there was very little indeed; and so effectually were the parts applied to each surface of the limb, and so steadily was the forearm kept pressed up to its berth, that there was not the least pouching of matter, all that was secreted being drawn out, and by the simple arrangement of the box, was readily sopped up, and prevented from rendering the dressings foul. Coexisting with this beneficial aspect of the limb was the salutary amendment marked upon the general health; all delicacy of aspect had nearly disappeared.

February 20th. The external incision discharged only a very small quantity, the internal being healed, and the transverse, as already mentioned; the structure interposed, thrown out, organized at the site of resection, was firm and condensed, and promised well as a uniting medium. At this date I was enabled to lay aside the box, and use as a substitute a light gutta-percha trough, shaped like the box, in an angular form, and which nearly embraced the posterior and inner surfaces of the limb, and extended from the shoulder and axilla above to

the middle of the hand, thus leaving the fingers free; by this appliance the limb was effectually steadied; by its not surrounding the limb, unpleasant heat was avoided, and the only part requiring to be dressed lay outside. Owing to the lightness of the material, at the same time possessing sufficient rigidity, a very moderate application of an ordinary roller maintained it in position. The entire was then supported in a sling suspended from the woman's neck. After this arrangement the patient was allowed to sit up in bed, supported and propped up by pillows. In a few days after, she was permitted to get up and walk about the ward, and to go into the garden during the sunny part of the day. Thus the case progressed most favourably, the constitutional improvement keeping pace with the local amendment. Gentle flexion and extension of the wrist and fingers were daily made; and soon the power of grasping was remarkably restored, the external wound being healed altogether on the 20th of March. From this date up to the period of her leaving the hospital in the first week in June, the advancement towards perfection in the restoration and use of the limb was most satisfactory. A great lesson was taught here, because a very great portion of the humerus was taken away, and, indeed, of the diseased forearm; yet by careful management, proper adjustment, such a connecting medium was secured, as to render the member, though shortened in its proportions, as well qualified, after some time, to meet the exigencies of its requirements, as when possessing its most perfect symmetry.

I had every reason to anticipate and look forward to so happy a consummation. For weeks back the forearm has been retained in a sling, without any control or mechanical appliance whatever. Day after day a constant gentle exercise was put in practice; the power of flexing and extending the fingers was regained; the similar motions of the wrist were restored; and the united combination of these forces maintained the grasp as powerful and secure as that of the sound limb. While the acts of pronation and supination were restored to their entirety, the only motion delayed, defective, was that of flexion of the forearm on the arm when the limb was allowed to fall into the extended state. Though short, condensed, and firm, this newly formed structure between the bones was such as was most desirable to be procured, yet, to the uninitiated or ignorant in such matters, it had the appearance of defectiveness, because not as yet sufficiently rigid to steady the wavering actions of the muscles around, uneducated in their new attachments and shortened state. From the rapidly improving state

Plate IV. Vol. XXVII. Page 21.



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of the limb, the perfect restoration of the power of flexion might with certainty be looked for; for even at this early period of the cure, if the forearm was only raised in the slightest degree, bringing it to a very obtuse angle, the wavering limb was brought up the remaining way by the flexors, it falling suddenly against the humerus, because the extensor muscle behind had not as yet recovered its antagonistic office. The patient had the power of traction with the limb entirely restored; and to look at it, it was stout and as well nourished as the sound one. I have given a faithful picture of the arm before and after operation (Plate IV., Figs. 1 and 2, beautifully engraved by Forster). She went back to the country perfectly restored to health, large, fat, and buxom. I have beside me at this moment (writing October 26th) a letter from my friend Dr. Poyntz, of Athlone, confirming even a greater improvement in the issue of this case, about which he was naturally most anxious, he having submitted her to my care. He writes:—"I would have answered your letter sooner, but was waiting until I should have a personal visit from Bridget Kilkenny. She was away in the country, making shirts, for the last ten days. The arm is quite well, and she performs every motion perfectly, with the exception of being entirely able to raise it upwards. Her health, in every respect, is excellent." Nothing, surely, can be more gratifying than the result of this case. It teaches a very grave lesson. At the first, from the beginning, there seemed to be a doubt cast upon the propriety, at least on the expediency, of excision, owing to the implication of parts being rather extensive—more so than what usually takes place when those conservative operative measures are had recourse to. But while dwelling upon the success of this case, while weighing every particular, I would urge upon the investigator this great practical lesson: the necessity of making himself acquainted with the amount of disease in the bones, the extent to which it has progressed, prior to having to do with any such undertaking.

In the foregoing report we have the conviction forced upon us, be we willing or not to receive it, that in this very unpromising case we have all the motions of the forearm, and the complicated and delicate movements of the fingers, rescued absolutely from their paralyzed state, and restored to their minutest functions. The only action of the limb not normally regained is that of flexion of the forearm on the arm; but I believe this, too, to be only delayed, not finally denied. Practically speaking, the following case illustrates well the point: A few years ago I resected the elbow-joint of a man far ad-

vanced in years. The portions of bone taken away were considerable; and after due time the wounds healed, the parts were consolidated, and all the motions of the forearm and hand restored, save the power of flexing the forearm on the arm when the limb was extended. The patient shortly after left the hospital, and I lost sight of him altogether. However, in the early part of last winter, when quickly walking through the street, I was saluted by a person passing by. Having taken no particular notice of him, he ran after and accosted me, when I recognised, after a few moments' scrutiny, this very fellow, about whom I had made many inquiries. Being delighted at seeing him able to use the arm so efficiently in taking off his hat, I requested that he would call at the hospital on the following morning, to which he readily assented. I presented him to the class, with his hat on, and made him take it off and put it on alternately with each hand; and having made him perform several offices, not one could detect any defective motion. I next stripped him, and exposed, greatly to their surprise, the arm which had been operated upon. It was well nourished, and its muscles as well developed nearly as the sound limb. In addition to all these minor motions being restored, the power and vigour of the limb were regained. This he quickly put to the test, of his own accord. Seeing a large bucket of water, holding, at least, four gallons, in the surgery, he lifted it by the handle, and walked up and down with it. He next, with the same arm, lifted the bucket from the ground, and placed it upon a table fully three feet high. This he did several times, with steady power, flexing and extending the forearm. The act here recounted called for great muscular exertion, and affords in itself a conclusive evidence as to what may be anticipated and looked forward to in similar instances. A great practical fact is inculcated—a great practical lesson is taught. How true, then, the hopes which I foreshadowed, when writing upon excision of joints in an earlier Number of this Journal:—"The surgeon need not be disheartened by the tediousness of recovery; in the end it will come." And as a greater confidence to his efforts, let me again quote the impressive and simple words of Moreau:—"If these things seem to be incredible, they may be easily brought to the test of experiment. I am firmly of opinion, that in similar circumstances the issue will be the same"[a].

In some instances, and indeed in the practice of every hospi-

[a] Butcher on Excision of Joints, Dublin Quarterly Journal, 1855.

tal surgeon, cases will present themselves when it will not be either advisable or necessary to subject the patient to so serious an operation as cutting out the entire articulation, when, for instance, only a portion of the articular surface of the humerus is carious and diseased, together with its corresponding condyle, a partial resection will be sufficient. I shall presently illustrate what I wish to enforce, by an admirable example of the practice. Before doing so, however, I would wish to say one word about the management of those cases of diseased joints in infancy and childhood. It is impressed strongly upon my mind—nay more, I would say it is my conviction, from a long and careful study of such affections—that those severer operative measures will very seldom indeed be either warranted or called for. This rule applies even with greater force to the upper extremity. I could cite numerous instances, most unpromising at first sight, where, by judicious surgical interference, the limb has been rescued. Childhood does not seem to be the recipient of the same wasting, destructive fever that takes possession of the constitution in the adult; and during the periods of early life repair is quickly brought about, owing to the extreme vitality of the living tissues. The part destroyed is, with amazing rapidity, regenerated and restored. How often do we see this fact forced upon our observation: a child is brought into hospital, having been thrown down in the street by a car rapidly passing by; the wheel has lifted a large flap from the skull; the violence which has torn and lacerated the soft parts has denuded the bone, probably chafed away its superficial surface; and yet, though this injury would surely kill the osseous tissue in the adult, in a few days we see the injured part, pink, reddish, covered with granulations sprouting up from every point, and incorporating themselves with the flaps, equally prepared by the hasty removal of all gritty matter and contused tissues. So is repair in the young to be looked forward to, to be depended upon as a certainty; and therefore again I repeat—no hasty removal of diseased joints in childhood.

I shall now recur to the case illustrative of partial resection of the elbow-joint, when the disease is limited in a certain way.

Case III.—*Partial Resection of the Elbow-Joint, where the disease is limited in a certain way; Recovery, with a most useful limb.*

At this very moment the person whose case I am about to describe is a patient in the hospital, suffering from fracture of

the fibula, an injury which he sustained a few days since; so that both myself and the class of students attending the hospital have the advantage of closely examining the arm, observing its powers and its motions, and interrogating the man in every particular. His case I extract briefly from my note-book:—

Robert Sheridan, aged 24 years, admitted to Mercer's Hospital April 20, 1854. *History.*—For many years back he has had his right arm and forearm anchylosed at a right angle, the result of disease attacking the part in early life. During latter years he has met with many injuries of it, occasioning, at times, great inflammation; but in all instances relieved by treatment, confinement to bed, &c. However, six weeks before his admission, as above dated, he got a severe fall, and was pitched upon the maimed arm with great violence; very high inflammatory action ensued; abscesses formed and burst anteriorly, corresponding to about the centre of the articulation, or rather a little to its inner side, and somewhat above the angle of flexure; pus, serum, and blood were discharged freely for several days, and after about three weeks the latter entirely disappeared, while the former continued in smaller quantity, with an abundant admixture of synovia. Thus the case passed from bad to worse; the neighbouring parts were tense and swollen, and the wrist and hand stiffened by œdematous engorgement. A secondary abscess had recently formed, too, behind the internal condyle, and the integument and fascia were bridged across the sinus that formed the communication between it and the original or primary abscess in front. By passing a probe through the aperture in front directly backwards, and then a little downwards, it came upon exposed bone, and from the freedom with which the soft parts were detached, the amount of diseased bone could be readily traced out, and was, with almost accurate certainty, entirely defined. There was no hesitation in pronouncing the extremity of the inner half of the articulating surface of the humerus, the internal condyle of the bone, and that portion of the expansion of its shaft immediately above the two, and connecting them together, in a carious state. They were rough, gritty, and softened, and yielded to the pressure of the instrument, which, by a little force, could be made to disintegrate and break up their texture.

Such was the local condition of the parts when the man was admitted to hospital; and the attendant constitutional prostration, with great emaciation, required immediate interference. I operated on the part in the following way:—The man was placed sitting in a chair; the arm was drawn from the side, and held rigidly elevated at more than a right angle with the trunk. It being so fixed, I made an incision fully three inches and a

half in length, commencing below the internal condyle, over its most prominent part, and up along the ridge leading from it to the shaft. All along this course the knife went down to the bone, and in its upper part, of course, lay behind the brachial artery. The extent of the incision permitted the diseased bone to be sufficiently exposed, great caution being taken to lift carefully the ulnar nerve from its bed behind the condyle. Wide copper retractors facilitated, in a very remarkable way, these proceedings, at the same time affording a protective security to the very important part encroached upon. A few scattered shreds of the internal lateral ligament remained, and the extent of disease in the bone was clearly revealed by the steps taken; then, with a powerful, long-armed, bone forceps, I clipped away the internal condyle, together with that part of the humerus originally forming the trochlea for articulation with the ulna, as far outwards as the ridge of bone separating the radius from the ulna; and finally that expansion of the bone above and connecting these two processes. All cartilaginous structure was entirely removed from the trochlea, and the bone eaten deeply above it. The cutting away of these parts seemed to include every thing obnoxious. Great caution was observed to keep outside the limits of disease, and certainly the section presented a healthy aspect throughout. Two arteries required to be ligatured, and then the flaps were laid down and gently brought together. They lay so by the support of a few straps of plaster. The limb, as already mentioned, was permanently anchylosed, the product of former inflammatory attacks, at a most suitable angle, and in this attitude it was supported upon a splint, cut out according to the same shape. Pledgets of lint, steeped in cold water, were laid over the wound, and a few turns of a bandage steadied the entire. The patient was afterwards placed in bed, the limb slightly elevated, and supported upon pillows.

It is unnecessary to follow on the history from day to day; it is sufficient to say, that no untoward event, no disagreeable casualty, occurred; that after about six weeks he was discharged from the hospital with the wound perfectly healed up, and an entire absence of pain in the part. As I before said, we are afforded now, at the expiration of four years, an admirable opportunity of examining the part in all its bearings; and its appearance is most accurately represented in Plate IV., Fig. 3. Never, from the time that the patient left the hospital to the present, did he suffer the slightest inconvenience in it; no recurrent abscesses, no sinuses, no neuralgic affection, or loss of power. During several years he has been employed in active

occupation in driving horses and tending cattle—in the daily engagements of a labourer—yet in all these varied and several requirements the arm never failed in its offices, nor compelled him to relinquish any. At this moment it is very perfect in its proportions; it is quite efficient for all its actions, save and except that of extension; yet the patient perfectly compensates for this denial by gracefully bending or yielding with the shoulder in what may be called the performance of all the under motions of the limb. Its bulk is but little reduced; and the power of traction with it is just as great and secure as that enjoyed by the sound limb.

I have dwelt thus at some length on the merits of this mode of partial resection, as demonstrated in its applicability to the elbow-joint; but the line of argument enforced, the benefits to be derived, the hopes to be fulfilled, cannot by any means be transferred in its adaptativeness to the knee-joint. The simplest consideration of the offices, the requirements of each articulation, will at once afford a solution to the question. In writing upon excision of the knee-joint, I forcibly dwelt upon the impropriety of partial excision, and for more minute particulars must refer the reader to the papers published in this Journal. The force of the conclusion to be arrived at is, if possible, more pointedly urged if the resection should take the line of the axis of the limb. I have already shown that for the perfect services of the lower extremity after excision of the knee-joint, it is essential that too much bone should not be taken away, if so, two evils militate against the capabilities of the limb: first, the undue shortening of the member; and secondly, from the opposed surfaces being so limited, a sufficient mutual resistance is not afforded, essential to the perfection of union and solidity. The same reasoning is just as applicable to vertical excision: if any portion of the femur or of the tibia entering into the articulation should be taken away, the area of resistance becomes too diminutive for the sustentation of the body; thus the limb would be weak in its stability, tottering and unsteady, defective as a means of progression.

Amputation at the Ankle-Joint; Syme's and Pirogoff's Operations.

In the Dublin Quarterly Journal for August, 1851, will be found a short paper of mine under the head of "Cases of Amputation; invention of a new saw." In this communication I made certain observations upon amputation at the ankle-joint, which were drawn from me by the particulars of a case in which I had to amputate the leg, subsequent to Syme's

operation at the tibio-tarsal articulation. It is pleasing to look back upon opinions delivered years gone by, and to learn, by a deep and sedulous inquisitiveness into them, that they were not at least hasty, premature, or arrived at without sedate deliberation; and here, with much humility, I would submit that it is too much the fashion of the day to describe bold and daring operations performed by dexterous hands, without that searching inquisitor, result, even being introduced, or made mention of.

In the case to which I have alluded, after dealing with it in the fullest way, making mention of the pathological changes, describing the anatomical arrangements of the adjusted and fused parts, &c., I expressed my conviction thus:—"From my own observation, and the facts now detailed, I do not consider this operation at all so applicable to the poor labouring man as to the wealthy sufferer; the latter may at will relieve the stump from pressure by expensive mechanical contrivance, horse and carriage exercise, &c. &c.; while the former, no matter what amount of uneasiness he may experience in the part, must endure and struggle on for subsistence, and probably in the end have to submit to another operation."

At this time, too, I quoted, in opposition to this, a passage from a Lecture delivered by Professor Fergusson on "Amputation of the Foot at the Ankle-Joint," and printed in the Medical Times for June of the same year; it runs thus:—"Whilst making these observations on the superiority of this operation, it would not be right in me to lead you to suppose that it is invariably successful, or that it is not sometimes attended by fatal results. Of the eight patients I have operated upon, two died after it; in one, death followed directly from the proceeding in a few days, as it would ensue after any other amputation; great irritation and inflammation ensued, and quickly carried the patient off. In the second case it would not be fair to put the issue to the operation itself, as the fatal termination did not happen until several weeks after, and it was due to disease of the lungs, which had rapidly supervened after the foot had been removed."

I remarked at the time:—"This mortality, then twenty-five per cent., I look upon as very considerable, more particularly when occurring in the hands of this distinguished surgeon. It is greatly to be regretted that Professor Fergusson did not allude in his Lecture to the present condition of the remaining six of his cases, whether the stump in each case fulfils efficiently the object for which it was intended, and whether any of the patients solicited amputation in preference to being in-

cumbered with a useless limb." I had seen at the time three cases, all of which were unsatisfactory, unsuccessful. Months passed by, and the revelation from the periodicals of the day was so strong in its favour, that, after reconsidering the entire matter, I determined, when a suitable case offered, to put the operation practically to the test for myself. The following is an instance of its application:—

Case IV.—*Syme's Operation at the Ankle-Joint; Recovery.*

Mary Egan, aged 45, admitted to Mercer's Hospital, March 1, 1853. *History.*—She states that, six months before admission, swelling attacked the metatarso-phalangeal articulations of the three outer toes of the left foot. The swelling became considerable, and in a short time the entire instep partook of the same uneasiness and pain; abscesses formed on the outer side of the foot, and matter was freely discharged from several incisions. On coming into hospital, the following was the state of the parts, as taken from my note-book:—"The arch of the foot is filled up; all the bones are expanded, particularly the os calcis, and the tibio-astragalean articulation seems free from disease, and admitting of motion without uneasiness or pain, while the slightest degree of motion communicated to the bones of the tarsus caused the most excruciating suffering. The power of progression, or laying the weight of the body on the foot was entirely lost; and four months before her admission, the hamstring tendons were slightly contracted, from the constrained position adopted to save the part from touching the ground as she hopped along on crutches. The general debility and emaciation were very great. Pulse 125.

I considered this case most suitable, in every way, for amputation at the ankle-joint, and was determined to test its capabilities when all promised so favourably. On the 7th I operated in the following way: the patient was placed under the influence of chloroform, and the ankle grasped by an assistant, to command the arteries; the first incision commenced just below the tip of the inner malleolus, and was carried with a slight curve, convexity downwards, across the ankle-joint, to the tip of the outer malleolus; I then passed the same small amputating knife beneath the foot, placing its edge at the inner side of the commencement of the first incision, and carrying it slightly curved, convex downwards, across the sole of the foot to a similar point on the outside, meeting the terminating angle of the first incision; this cut was made through the entire depth of the parts in the sole of the foot. I next put aside the large knife, and with a scalpel dissected up the flap from the

forepart of the joint, and plunged the knife in and cut down the internal lateral ligament, close to its attachment; and the inner edge of the flap from the sole, and then executed a similar proceeding on the outside: all this time being most cautious to keep the knife as close to the bone as possible, more particularly when acting on the internal side, so as to avoid the posterior tibial artery, and not cut it before its division into internal and external plantars. I next forced the foot downwards, holding it firmly with the left hand, and, with the knife steadily kept to the astragalus, continued the dissection backwards, cutting across the attachment of the tendo Achillis, and cautiously freeing the granular soft parts from the bone until it was denuded, and the heel flap left free; the integuments in front of the tibia and fibula were then dissected up nearly a quarter of an inch, likewise off the malleoli, and so all around, so as to permit the fine blade of my own saw to be placed behind the extremities of the bones, to cut off the malleoli together with the intervening cartilage and a thin layer of bone, from behind forwards: this being accomplished, the anterior tibial, the external and internal plantar arteries, and two smaller branches in the outer and under part of the flap, were ligatured. All bleeding having ceased, I at once brought up the flap, which fitted beautifully, and retained it by four points of interrupted suture; a compress was placed over the cushions and some long straps of plaster to support it steadily upwards; the patient was then conveyed to bed, and the stump raised upon pillows; a full opiate was soon after given in some warm wine; the posterior flap was cut intentionally small, so that it lay up to the bones, and no bag or pouch was permitted.

2 o'clock P. M. The patient suffering intense pain in the stump and up the limb; removed the bandage, leaving the flap supported by the adhesive straps, and placed a large compress of lint soaked in tincture of aconite across the ankle above the cut surfaces, and covered it with oiled silk; this application acted almost instantaneously in affording relief; repeated the full opiate; the stump was allowed to rest upon a hollow cushion, so as to remove all pressure from the posterior flap, and not interfere with its circulation. On the 10th of March the report is most favourable: slept all the latter part of the night, and is this morning free from all pain, and says she feels more comfortable than for the last five months. Stump does not require to be interfered with. On the 2nd of April all the ligatures were cast off, and on the 13th the entire is reported to be healed; however, on the 21st a small abscess formed about the centre of the cicatrix, accompanied by great pain. I

punctured with a bistoury, and let out a few drops of pus; the pain continuing after, I applied two leeches a little higher up, and enveloped the entire in a large warm stupe-cloth, and gave a full opiate; some relief followed towards evening. On the 23rd the pain was very great, shooting from a point very deep beneath the abscess, and extending along the nerve upwards. The whole back of the little abscess was highly sensitive, and from this the pain radiated. I cauterized the interior freely with a probe coated with nitrate of silver. On the following day the deep burning pain was subdued, but in a few days after I had to open another abscess, deep-seated, on the outer side of the stump; pus and blood flowed very freely, and much relief followed.

On the 20th all was healed, and the patient left the hospital for the country; and by repeated efforts at extension with the application of a splint behind the popliteal region, the contracted state of the hamstrings was overcome, and flexion and extension of the joint regained. On the 5th of August the patient returned again to the hospital; the stump was nearly solid throughout, only one point in front still discharging from a recent abscess, which gave way of its own accord. Having ineffectually tried various means to allay the uneasiness, to heal the part, on the 12th I made a free incision through the whole thickness of the stump, the sinus marking the centre of it; having in this cut laid bare a thick fibrous structure, I cautiously dissected it out, and it proved to be certainly an expansion of, or a new formation incorporated with, the fibrillæ of the anterior tibial nerve; quickly after, the wound healed, nearly by the first intention. In a few days later, pain seized upon the inner side of the stump, of a very severe character, yet all the wounds were healed. The tincture of aconite was applied as before, and with relief. On the 11th of September the patient was again dismissed from the hospital. Nothing could look better than the stump: it was round, elastic, beneath a firm, perfect cushion. In this state she went home, her friends and herself well satisfied at the part being healed. She was not away long when severe pain suddenly seized the stump, and terminated before morning in bringing on a fit of madness to which she was liable, and with which she was affected on two former occasions. In this state of total mental aberration, she was brought in again to the hospital, and, even when in this violent state, referred pain to the stump. The inhalation of chloroform and large pledgets of lint soaked in tincture of aconite, and laid along the forepart of the leg and round the ankle, subdued it. On the 1st of October the patient was again

Plate V Vol XXVII Page 31

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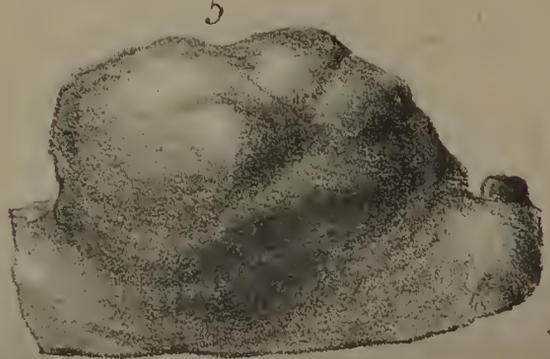

restored to reason, the stump being entirely healed, and she so returned again to her own home.

Of course, on consideration of this case, we can in no way connect the mental aberration with the special operation performed; and upon strict inquiry, with great difficulties and obstacles placed in the way, I at length was credibly informed that this patient had been insane, and had threatened to take the lives of two of her children, eleven months before her admission for operation, and, consequently, before the tarsal bones were diseased at all. This imbecile condition has still existed; and, though the stump is perfectly formed, yet the patient never could be induced to use the limb in progression, though a suitable little boot was made for it. It is now five years and a half since the operation, and a few days since I visited the patient, and found her quite imbecile, sitting upon her bed, moving backwards and forwards, occasionally muttering some nonsense, but at intervals rational, at least so as to comprehend certain questions put to her, and her attention arrested suddenly when any questions were applied about herself, more particularly in reference to the condition of her leg.

In the case just cited there are difficulties which cannot be satisfactorily answered: for instance, nothing can be more perfect than the formation of the stump; it is a beautiful cone, somewhat flattened at its apex; it bears percussion, and strong, steady pressure with the hand, without the patient wincing—a beautiful picture of it is represented in Plate V., Fig. 1, taken by Forster from a cast in my possession—yet I could not get her to rest for a moment the weight of the body upon it. I was informed that she made several attempts before her madness assumed its present fixed form, but invariably complained of pain shooting upwards, of a very severe character, which made her desist from any further trials except when coaxed to do so.

In the following case I likewise performed Syme's amputation at the tibio-tarsal articulation; when, with the intention of executing Pirogoff's operation, I was compelled to adopt it, owing to the disease of the tarsus being more extensive than I could by possibility determine prior to incising the parts; then the abnormal state of the calcis was revealed, and one operation substituted for the other.

Case V.—*Pirogoff's operation at the Ankle-Joint, in which Syme's had to be substituted; Recovery.*

Joseph Thompson, aged twenty-four years, admitted to Mercer's Hospital on the 22nd of February, 1858, under my

care. *History.*—Pain commenced in the instep of his right foot somewhat more than three years ago. It persisted of a dull character, in spite of the usual means tried in such cases; it gradually extended, the swelling increased, and abscesses formed on the dorsum and sides of the foot, but more beneath; these abscesses burst, and discharged abundant pus at first, but afterwards a thin sanies; for several months he could not put it to the ground, and the slightest twist or turn produced intense suffering; sweats became frequent; his appetite and sleep nearly gone, and great emaciation set in: in this condition he came to Dublin on the above date. On coming into hospital, his general health was a good deal shattered, and on careful examination of the foot through the several fistulous openings, the probe traversed very widely, and detected extensive disease in several of the metatarsal bones, particularly the scaphoid, cuneiform, and cuboid. I was not so certain of the astragalus being much implicated, and there was no evidence that the articular surfaces of the tibia and fibula were affected. I thought the calcis might be healthy, as there was neither expansion of it, nor thickening of the integuments over it, or tenderness at any point. Reasoning in this way, I determined to perform Pirogoff's amputation at the ankle; in other words, to save the calcis in the under flap; and on the morning of the 5th of March I operated after the following method. The patient being placed on the operating table, and chloroform being given, the leg close to the ankle was firmly held by an assistant; grasping the foot in my left hand, I drew a strong, large scalpel, in somewhat a curvilinear direction, across the tibio-tarsal articulation from the tip, or a little above that point of the external malleolus, upwards and across the front of the joint, to a corresponding point on the inner malleolus; the joint was laid open all through this incision; the foot was forced down with the left hand, while, at the same time, the knife divided successively the internal and external lateral ligaments; from each angle of the first incision the knife was carried down at either side to the sole of the foot, thus considerably increasing the transverse wound, and affording greater room for getting at the bones. I next separated the astragalus from the calcis, passing the knife between the bones, by a little manœuvre, in elevating, depressing, and slightly rotating with a lateral inclination the foot alternately as the knife made progress, gently and steadily introduced, and so dividing the binding ligaments between; the astragalus, thus liberated from the leg and calcis, remained adherent to the remainder of the foot by its articulation with the scaphoid; a sharp-pointed small amputating knife was then passed across the sole from within

outwards in front of the calcis, and beneath the tarsal bones, its edge being turned forwards; a considerable flap was taken from the sole, with the intention of being folded round the front of the stump, and then I easily passed the fine blade of my own saw so as to lie upon the calcis, the back of the instrument resting against the anterior surface of the upper attachment of the tendo Achillis; thus it was cut from behind forwards and downwards in a somewhat slanting manner, and then directly downwards, removing the cartilaginous covering at its anterior extremity for articulation with the cuboid. By this last stroke the foot was severed. The advantage of delaying its liberation until the calcis was sawn through cannot be over-estimated, as a leverage power was afforded throughout the operation for steadying the parts. I next dissected up the anterior flap very slightly convex from the articular margin of the tibia and malleoli, and severed these processes with the intervening cartilage and the thinnest osseous layer by the section from behind forwards with my own saw. There was the slightest obliquity in the section from behind for more perfect adaptation to the calcis. On placing the parts together, nothing could lie more evenly; they seemed as if absolutely cut out by the same measurement; and the flap which I had formed from beneath lay up most efficiently, so as to cover in the entire extent of the exposed parts: in a few words, the stump presented in every way the most perfect proportions, but, unhappily, I could not avail myself of all the advantages which the saving of the calcis holds out. My mortification was very great to find that the cancellated structure of the calcis was laden with oil and scrofulous deposits, though its articular cartilages were healthy. It was to me apparent that the bone could not be saved; therefore, I had at once to substitute another operation for that which in the first instance appeared to possess many advantages, all the details of which had been so rapidly gone through, and by which such a beautiful adaptation of parts was created; presumptive evidence of a result shadowing forcibly the utility of the limb in the after-requirements of the individual. The very great practical lesson is taught here, too,—the substitution of one operation for the other, the changing of Pirogoff's into Syme's. The steps for effecting this object were very simple: the remaining and adherent portion of the calcis had to be dissected from its bed; this was easily done with a sharp scalpel; commencing above and freeing the tendo Achillis, keeping the edge of the knife close to the bone, and proceeding by short and rapid sweeps downwards; the flap formerly lifted from the sole was instan-

taneously curtailed in its proportions by a decided stroke of the knife, and then the heel-flap lay as accurately in contact, and as well fitted to the raw surface of the tibia, as if no other operation had been contemplated from the first. It may appear from this lengthened account, and from the time necessarily taken to describe these several proceedings, that the sufferings of the patient, and the operative proceedings, were prolonged. I can, however, most truthfully assure the reader that no such conclusion is warrantable. The patient lay gently asleep, insensible under the influence of chloroform; and in a few moments all that was required or considered advisable was efficiently executed. The same pressure that steadied the limb, applied above the ankle, likewise controlled the arteries; and at this stage the anterior tibial and internal plantar, all that gave out blood, were ligatured; five or six points of the interrupted suture held the flaps together, while a few long straps of adhesive plaster supported the cushion, aided by some long pledgets of folded lint placed around posteriorly and laterally, and retained by the gentle pressure of a light bandage. The dressing having been completed, the patient was removed to bed, and the limb placed in an elevated position, slightly flexed, and resting on its outer side. He quickly recovered from the chloroform, and soon after some warm wine was given, together with a full opiate. At 1 o'clock P.M. reaction was fairly established, and a slight weeping commenced from the wound; it was very trivial, but, continuing for nearly half an hour, I was sent for. I did not consider it advisable to open the wound; I therefore applied an additional bandage and support to the stump. I rolled the limb up to the knee with a moderate tightness, and steadily fixed a firm compress (a small bandage rolled up) over the tibial artery, just where it comes off from the popliteal, which was retained by a few turns of a bandage somewhat lighter than the rest. This arrangement effectually restrained the bleeding. At 6 o'clock P.M. reaction very full; ordered a draught containing tincture of opium and digitalis; and to be repeated at 9 P.M. After this I saw him; his pulse was quiet; there was no return of the bleeding; and he was free from pain.

March 6th. Had sleep through the night; all throbbing and heat and pain had left the limb; pulse rapid and weak. To have an opiate immediately; ammonia mixture; and beef-tea; draught to be repeated at 5 and at 10 P.M.

7th. Slept well; free from pain; no return of bleeding; continue opium and stimulants.

8th. This day I removed all outside dressings, leaving the

inside straps adherent; the stump looks admirably; it preserves the full temperature; no pain in it; but, passing upwards along the entire limb, particularly in the thigh, the course of the lymphatics are clearly marked in red lines. To continue stimulants, ammonia mixture, and opium draught, every third hour.

9th. On this day another complication, well-marked phlebitic inflammation; the combination giving rise to the most alarming constitutional symptoms: great depression; sudden sinking, beyond anything I have ever seen produced in so short a time; pulse scarcely perceptible, and so rapid as to defy being counted; respirations 46 in a minute; features sunken; sordes in mouth and teeth; poured in draughts with chloric ether, tincture of castor aromatic spirit of ammonia, and tincture of opium every third hour; the stomach and loins anointed with mercurial ointment and swathed with flannel; the arm-pits and groins smeared thickly with the same unguent; the affected limb covered in a similar way, and surrounded with hot flannel stupe-clothes, protected from evaporation by large pieces of oiled silk. Eight ounces of whiskey to be given in divided doses; broth and beaten-up eggs to be given repeatedly.

10th. In much the same state, almost dead; but little hopes entertained by any one of recovery. Yet in all these terrible cases produced by sudden and violent changes in the economy, the surgeon, when he understands the true source of the mischief, should never relax his endeavours, or diminish his most energetic resources while life lasts. Thus I continued all things, pouring in stimulants by the mouth, twelve ounces of whiskey by day, and a like quantity at night; injections of turpentine, assafœtida, brandy, &c., repeatedly; mercurial inunction; the most stimulating medicinal draughts every third hour; I cut off all bandages from the stump, and left merely a couple of straps to support the flap.

15th. Up to this date, much in the same fearful position, and up to the present the same powerful means were steadily continued; the respirations were as hurried, and the pulse almost a continuous wave; there was one local feature promising—some purulent discharge showed in the wound; I removed everything offensive from the limb, propped up the patient in bed with pillows, so as to relieve the venously congested lungs, and ordered stimulants of all kinds in the same amount as before, and the mercurial inunction, &c.

16th. A shade better; pulse 130; respirations 38; mercurial action established; the stimulants and food as follows:

twelve ounces of whiskey in the day, and the same at night; two quarts of beef-tea; stimulant and sedative draughts as from the first, every third hour.

17th. Still improving; continue everything; propped up by day, and placed recumbent at night.

19th. He is marvellously improved; pulse 100; respirations 36, not much embarrassed; sleeps steadily; eats six eggs beaten up, and takes two quarts of beef-tea, twenty-four ounces of whiskey in the day and night, and stimulating sedative draughts every third hour, when awake, day and night; mercurial ointment lightly applied, just to keep up and insure a continuance of its action; applied some additional support to the stump; discharge natural in consistence and quantity.

21st. Constitutional symptoms greatly amended; had to open a large abscess on the posterior surface of the leg, and about its centre; no diminution in stimulants or opiates; he requires all.

22nd. Rolled the leg from above down, to prevent, if possible, retraction of tendons, and liability thereby to abscess, and supported forwards the flap with a few turns of a bandage; better in every respect; continue everything as before; omit mercurial ointment.

26th. No alteration in the mode of dressing; continuing the opium, but for the last three days lessened the stimulants to half the quantity in the twenty-four hours; ordered chop, beef-tea, &c.

30th. Improving in every way; wounds healing rapidly, and constitutional symptoms all gone; eats, drinks, and sleeps; stimulants reduced to four ounces in twenty-four hours.

April 3rd. Greatly improved constitutionally, and but little discharge from the wounds; abscess healed.

20th. Since last report he was seized with sudden and unaccountable prostration, loss of appetite, &c.; but after the second day, by free exhibition of stimulants, he again rallied, and is now dressed and up every day; wound just healed.

May 12th. Stump just healed, and able to go on crutches into the garden.

June 2nd. A large abscess formed beneath the tendo Achillis; a free incision was made, which discharged its contents; some caution was requisite, as the layers of fascia had to be freed over the line of the posterior tibial artery. On the 29th I had to lay open another, near the insertion of the tendon at the back part of the cushion. On July 9th all was nearly healed; on the 21st he went to the country. Thus this most embarrassing case was brought to a satisfactory termination. Nothing could possibly

be more unpromising from first to last : the most fearful complications occurred, for there can be no doubt that pyemia was set up after the establishment of the lymphatic inflammation. Even towards the resolution of the case, there were irritant cough and slight purulent expectoration, with all the characteristic fetor of the secretion. This fetor was even recognised by myself prior to any trace of the matter in the ejected sputa. The physical examination of the chest gave evidence of absolute dulness at one part, the upper portion of the left lung; and after the expectoration was established, as the case improved, it gradually subsided and ultimately disappeared altogether. I have no doubt upon my mind that a purulent depot had formed in the part of the lung specified, and ultimately opened into a bronchial tube, and was thus got rid of. Mr. Tagert, who carefully watched this case with me, coincided in the same view. To the mercury here, I think, must be ascribed the great and salutary check to the inflammation in the venous structure, the paralyzation of the whole capillary system. This was materially empowered by the large and repeated doses of opium, while the *inordinate quantity of stimulants* of various kinds was effective in promoting the heart's action, and arousing the dormant nervous centres.

I have beside me a letter written by this man on the 27th of October, and he states "that a little matter yet comes off, from the opening on the outside, when pressed upon; the stump is gradually increasing in firmness, especially during the last fortnight. I have not walked upon it yet. My health and appetite are very good." The patient likewise sent me a cast of the stump; it is perfect in shape, &c. (See Plate V., Fig. 2.)

Such, then, is the history of these two cases, in which I performed Syme's operation; and upon serious reflection I have no reason to alter the opinion which I expressed so many years ago, as to its not being so applicable to the humble labourer and artisan, as to the wealthy sufferer.

If anything could make me waver in this view, owing to some of the comparative benefits obtained in the instances I have adduced, it is entirely removed by the altered sentiments of Professor Fergusson, for I have already quoted his favourable notice of this operation as expressed in his Lecture on the subject, at the time when mine was condemnatory of the practice. It is right that the matured opinion of so great a surgeon should be fairly put, upon a question of such great importance; and the way in which it can best be done, I conceive, is

by reference to the latest edition of his Practical Surgery, a book that should be in the hands of every surgeon. In the third edition, published October, 1852, we find that subject dealt with in the following terms, at page 489:—"The operation proposed and performed by Mr. Syme does away with such objections, however; and, in so far as I can judge, is one of the greatest improvements in modern surgery, as regards the subject of amputation." And at page 491:—"I have now had considerable personal experience in this operation, and do not hesitate to give it my strongest recommendation." How different the views expressed in the last edition, the fourth, published in October, 1857! At page 487:—"I have now had considerable personal experience in this operation, and have seen some excellent results from it; but I regret to state that the early impressions I had formed of it, as expressed in the last edition of this book, have been greatly modified. What with the violent inflammation extending up the leg, sloughing, secondary hemorrhage, death immediately dependent on the operation, tardy healing of the wound, and defective condition of the stump, from languor of circulation and tenderness, so that it could not be pressed upon or made useful,—I have formed a most unfavourable impression against it."

It appeared to me that many advantages presented in Pirogoff's operation, and therefore I adopted it, not being satisfied with Syme's, and yet wishing above all things to preserve the elastic cushion of the heel. I shall insert here Mr. Wells' translation of the different steps of Pirogoff's operation, from his own book:—

"I commence my incision close in front of the outer malleolus, carry it vertically downwards to the sole of the foot, then transversely across the sole, and lastly, obliquely upwards to the inner malleolus, where I terminate it, a couple of lines anterior to the malleolus; thus all the soft parts are divided at once quite down to the os calcis. I now connect the outer and inner extremity of this first incision by a second semilunar incision, the convexity of which looks forward, carried a few lines anterior to the tibio-tarsal articulation. I cut through all the soft parts at once down to the bones, and then proceed to open the joint from the front, cutting through the lateral ligaments, and thus exarticulate the head of the astragalus. I now place a small narrow amputation saw obliquely upon the os calcis behind the astragalus, exactly upon the sustentaculum tali, and saw through the os calcis, so that the saw passes into the first incision through the soft parts. I separate the short

anterior flap from the two malleoli, and saw through them at the same time close to their base; I turn this flap forwards, and bring the cut surface of the os calcis in apposition with the articular surface of the tibia. If the latter be diseased, it is sometimes necessary also to saw off from it a thin slice with the malleoli."

I think it will be found that greater facilities of cutting the bone, disengaging the parts, will be afforded by the method which I have laid down, rather than that conveyed by what I have transcribed.

According to the same translation, Pirogoff claims for his method the following advantages:—

"1. The tendo Achillis is not divided, and so we avoid all the disadvantage connected with its injury.

"2. It also follows that the base of the posterior flap is not thinner than its apex; while the skin on the base of the flap remains united with the fibrous sheath of the tendo Achillis.

"3. The posterior flap is not cap-like, as in Syme's method, and its form is therefore less favourable to a collection of pus.

"4. The leg after my operation appears an inch and a half (sometimes even more) longer than in the three other operations (Syme's, Bauden's, Roux'), because the remnant of the os calcis left in the flap, as it unites with the inferior extremities of the tibia and fibula, lengthens them by an inch and a half; and—

"5. Serves the patient as the point of support."

Several cases are given by Pirogoff, proving the success of his method. In allusion to the frequent abscesses occurring after any of those amputations at the ankle-joint, he says:—"I fear nothing so much as this, namely, when the belly of the muscle contracts, and draws up the tendon divided, or half destroyed by suppuration, out of the sheath. I am convinced that the fixing of the tendons before and during the operation by methodical pressure, and the continuous maintenance of the limb in one and the same position by the plaster bandage, may contribute a great deal towards the successful result of these operations."

I am indebted to Mr. Wells' translation, likewise, for Pirogoff's concluding observations relative to three cases which he minutely details; they offer many points for reflection, and, practically, are of value in the selection of cases:—"It was also worthy of remark, notwithstanding the suppuration and the considerable gravitation of pus into the flap (in the third case);

notwithstanding the softness and fatty degeneration of the os calcis, which could be cut with a knife (in the second case): still the remnant of the os calcis united firmly with the tibia and fibula. Lastly, one of the cases (the third) proves that the exarticulation at the ankle-joint after my method, at least in children and young people, may be undertaken even in cases of diseased ankle-joint, provided disorganization has not extended too far over the soft parts about the articulation. In the boy in the second case, I found pus in the capsule; during the operation the cartilages softened and decayed; the ends of the bones also softened and in a state of fatty degeneration: yet the result of the operation was most successful." We have a very favourable report of the operation published in the Lancet[a] by Mr. Croft, Assistant Surgeon to the "Dreadnought." It has been performed six times—four recoveries, two deaths; one from granular disease of the kidney, the other from secondary deposits of pus in various joints. In all the four successful cases there was suppuration along the tendons of the leg, but no exfoliation of bone. The posterior part of the os calcis was united firmly with the tibia generally in about three weeks, but in one instance in twelve days. Mr. Fergusson, in the last edition of his Surgery, alludes to a successful case performed by Mr. Ure of St. Mary's, and gives a sketch of the stump resulting after a similar operation executed by Mr. Partridge, upon which he observes:—"The child, when I saw it a few days ago, was walking nimbly, and with a halt scarcely to be detected."

It is certainly difficult to reconcile the successes of the operation in the hands of the great Russian surgeon, its inventor, with the intelligence "reported by Messrs. Mouat and Wyatt, in an official paper addressed to Inspector-General Sir John Hall, that Pirogoff has modified his operation to that of Syme"[b]. However, be this as it may, now that we have got hold of it, we will not readily let it escape without a fair trial. I conceive myself that it offers one great advantage over any other proceeding that could possibly be devised in this situation, one which I think must secure a stump capable of any hardship, and that is, because the heel cushion, the great characteristic of Syme's operation, is preserved in its *normal attachments* to the calcis, while the slicing of the upper surface of the bone permits of a ready union being established between it and the cut surfaces of the tibia and fibula; a solid bond, bone grown into bone, or a fibro-ligamentous structure of such

[a] February, 1858. [b] Fergusson's Practical Surgery, Fourth Edition, p. 487.

shortness and density as to resist all violence or displacement. I look upon the operation, altogether, as a beautiful application of our art. No doubt, some difficulties may arise during the process necessary to cure: abscesses may pass along the tendons and up the leg, and so they have been proved to do after Syme's operation; by careful padding and bandaging from above downwards, as I have laid stress upon myself, and as mentioned by Pirogoff, such casualties may be prevented or fairly managed. The risk as to life is not greater than in Syme's operation; and allusion need scarcely be made to the difficulties in performing either. The chance of the heel-flap dying, or of the divided calcis perishing for want of supply, need not be dreaded, for the *rete calcanea* is not interfered with, the interchange of blood is sufficient for both; nay more, it will afford its quota of vitality towards the union surely to be brought about with the tibia and fibula. How often does the hospital surgeon see portions of the calvarium removed with the scalp, and how frequently does the military surgeon see the same from sabre wounds; yet each is conversant with the fact that it is only necessary to lay back the scalp and the piece of bone from whence it was sliced away, and union will surely follow, either by first or second intention: so with the calcis, it is undisturbed from its external and surface supply, therefore will not perish. The length of the limb gained by this operation must not be lost sight of. In the four cases given by Mr. Croft, the difference in length between the foot operated upon and the sound foot was never more than three-eighths of an inch; and in Mr. Partridge's case, as before mentioned, "the child was walking nimbly, and with a halt scarcely to be detected."

Before concluding, however, I cannot, in justice to the subject of amputation at the ankle-joint, pass over the most interesting cases published by Mr. Oliver Pemberton, Surgeon to the Birmingham General Hospital. His views are quite in favour of the proceeding; and, to carry out the principle "*si quid novisti rectius istis candidus imperti*," I must make mention of the case of a boy in which I assisted the late Dr. Bellingham in removing the foot at the ankle-joint, after Syme's method, about two years and a half ago. The patient was aged thirteen years. He has been with me repeatedly during the last five months for a carious state of two of the ribs, so that I have had ample opportunities for observing him. Though he has been imperfectly walking upon the stump for the last nine months, assisted by a stick, yet now he is able to do so without

any artificial aid. It is only four months since all the sinuses have healed up; they were continually forming in the lower third of the leg and at the junction of the margins of the flap. From the very first it was difficult to keep up the flap to its berth; however, time has done much, and now he is able to walk upon it, assisted by a simply contrived boot, which conduces to the proper length of the limb, bears off unequal pressure, and protects the surface from injury; though the well-formed cushion fulfils its part, frequently matter oozes out of one of the several apertures above the stump and along the limb. In Plate V., Fig. 3, is most accurately represented the condition of the part. I took the cast myself from which the engraving has been so beautifully copied, so that I may attest the truthfulness of the picture. The several apertures on the front view are naturally exhibited, while many behind cannot be seen; some are so recent, as to be even now only scabbed over: yet, taking all things into consideration, I would say this case speaks, on the whole, favourably for Syme's operation. Though considerable time has passed by, yet this is not to be looked upon as a fatal disparagement; the grand object is gained, the patient can get about, and earn his bread with the limb.

Case VI.—*Excision of a large portion of the lower Jaw in a boy aged seven years, for an osteo-vascular tumour; Intermediary hemorrhage after operation considered; Perfect recovery.*

Oliver Bond, aged 7 years and 3 months, was admitted to Mercer's Hospital September 28, 1858, with a tumour, about the size of a large walnut, springing from the inferior maxillary bone. Fourteen months ago the boy was constantly complaining of aching pain in the centre of the body of the lower jaw, on the right side. There was some fulness of the bone and tenderness of the part around, both within and without, two of the molar teeth corresponding to this site. The pain frequently assumed a dull kind, not so acute, accompanied by great tenderness, with a constant desire to rest the face upon anything that offered for support. The teeth were in no way diseased; they were hard, white, and covered with enamel. After the continuance of this pain for about two months, the teeth loosened, and as they gradually became so, the pain was mitigated in its character; ultimately they were shed, being gradually thrust up by an apparently fleshy growth springing from beneath them. This growth, though hard and firm as bone

to the touch, yet was covered by a fleshy surface. Gradually and slowly it increased, with occasional hemorrhages from its surface. At some times it was exceedingly prone to bleed, and frequently the friends of the child had difficulty in arresting it; however, by the application of lint, steeped in turpentine, it was stopped on two occasions.

The following was the state of the child when received on the above date under my care:—

He was a pale, delicate-looking little creature—the waxy colour being no doubt produced from the repeated small losses of blood. He suffered at times a more acute pain in the jaw than at others, which increased considerably on masticating his food, as then the growth was pressed upon. On simple inspection of the face, the deformity was not very remarkable. A rounded, even tumour rendered the right half of the lower jaw more prominent than the left, particularly about its centre. On opening the mouth widely, the extent of the tumour could be seen in its entirety. The body of the bone for more than an inch was engaged; its walls were expanded; and, springing upwards, a solid osteo-vascular tumour appeared, about the size of the largest walnut. Now the expansion of the jaw corresponding to the site named was equable, as great in the inside as on the outer, and though the under rim or edge of the bone was not distorted, yet it was equally apparent that the origin of the morbid product had its nidus, its birth, and its growth deep in and from the osseous structure of the jaw. As it passed upwards, it gradually expanded until it measured an inch and a half, incorporating with itself the gum. The tumour, having passed above the range of the teeth in front, and behind it about one quarter of an inch, became quite flattened on the surface, while its margins were rounded off. Its surface presented other peculiarities. It was uneven, mammilated, of elastic, dense structure, compressible to a moderate extent, while its walls were osseous and perfectly unyielding. The coloration of the tumour deserves notice. All the superficies of the elastic mammilated part was highly vascular, being of a deep purple hue, while in others arterial vascularity predominated. The least roughness in manipulation, or undue pressure on it, caused breach of surface and a ready effusion of blood; and thus, during the act of mastication, bleeding often was a consequence. The handling of the tumour in itself, or the compression of it in a moderate degree, gave no pain, save when applied to its most elevated surface; neither did pain set in or lurk in it as a consequence.

As to the propriety of removing this tumour, no second opinion could be entertained. The dangers and annoyances already noticed, consequent upon its growth, called loudly for such a proceeding. For the accomplishment of this object, two operative procedures instantly suggested: the one, a partial cutting out of the bone, together with the tumour; the other, the resection of the entire body of the jaw with the morbid growth. The one, a scooping operation, cutting away the tumour with the alveoli, and the surface of the jaw from which they sprung, leaving the under surface and more compact portion uninjured in its entirety. No doubt, in the smaller forms of epulis, and in certain other mild kinds of tumours, such a proceeding would be best suited and greatly to be extolled—in fact, it should be the practice, and from which no deviation would be admissible; but, as in the present instance, where the structure of the bone was extremely involved; when it was widely expanded; when none of the original healthy, dense tissue of the bone remained, save along the lowest part of its under margin; when the nidus of the growth was, as it were, buried deep in the interior of the bone; and when from this point it started its slow, steady, disintegrating, progressive action, until it loosened and forced out the teeth, and ultimately spread in that direction where least resistance was offered—I believe, in such a state of things, the total removal of that part of the jaw to be imperatively demanded. Again, it is only by so decisive a proceeding that an immunity from return could be guarded against.

With the conviction of the correctness of these views as applied to the case detailed, I executed the following operation on the 4th of August:—The boy was rolled in a large sheet, mummy-wise; he was seated upon a high chair, with his head resting against the breast of an assistant. Standing in front of the patient, I transfixed the lower lip, in the mesial line immediately beneath the red border, with a straight, sharp scalpel, carrying the knife directly downwards to the base of the chin; the vertical incision having been completed, the knife was next laid on the cheek, just in front of the facial artery, and a little above the lower edge of the jaw; being struck at this point down to the bone, it was rapidly drawn forwards until it met the lower angle of the wound first made, and their junction was most accurate; blood started from the furrow as the knife passed along, but it was only the issue from minor vessels; this flap, a small one, was quickly freed, and elevated from its attachments, but it was difficult to hold it out

of the way, and, sooner than be interrupted, or prolong the operation for a moment more than was requisite in this little, tender patient, I completed the section of the red border of the lip. The division of this part facilitated matters extremely, permitting a free and extensive elevation of the flap and cheek, and according a ready axis to the division of the bone, which was completed after the following method:—The body of the bone was deeply cut with a fine saw, through its compact lower margin, just external to the incisor teeth, and a short-jaw-bone forceps completed the solution of continuity. I next, with a scalpel, prolonged the horizontal incision backwards to the angle of the jaw, caution being taken to sweep the knife in a slightly curvilinear direction while making the section of the facial artery. This manœuvre prevented retraction of its lower or cardiac end; and the vessel was at once taken up and ligatured; the upper flap was more posteriorly set free, and the bone being detached from the soft parts beneath and behind its angle, its section was completed behind the last molar tooth by the application of the saw and forceps, as in the first instance. The isolated portion of the jaw, together with the tumour, was then carefully liberated from the soft parts, the knife being kept close to the bone, particularly below and behind; during the incisions requisite for its detachment, the index finger of the left hand rested beneath the blade of the knife, thus effectually shielding the larger vessels so superficially placed at this tender age of childhood. I wish particularly to emphasize the practical value of the latter observation. The part being thus removed, but one small artery in addition required ligature, and little blood was lost during the prosecution of the dissection. The small vessels ceased to bleed after a few seconds, and the dental, having thrown out two or three jets, retracted and likewise stopped. Seeing that no further flow was to be apprehended, some wine was given; lint was placed in the gap from whence the bone was excised, to prevent the bones falling together, and then the parts were brought together and retained by three points of the interrupted and three of the twisted suture. The latter were placed in the following order,—one close to the maxillary vessel, another through the angle of the flap, and the third beneath the red border of the lip; two points of the twisted suture were placed midway in the interspaces between the needles, and the third on the upper surface of the lip. Thus the entire was supported, the section from one end to the other lying in the most accurate apposition. There was no retraction of the

tongue to cause uneasiness. The child was next removed from the operating theatre, and placed in bed, almost supported in the sitting position, any deviation from which produced distress in respiration, owing to the tongue inclining or falling backwards. In three hours reaction was nearly established, and a sharp intermediary hemorrhage set in; blood flowed quickly, of a bright arterial colour, several large coagula were formed by what escaped. I mention this fact merely to show that a considerable quantity had been shed; however, when I arrived at the hospital, the bleeding had ceased. On inspection of the case then, it was clear that a good deal of blood had been lost, both from the quantity produced and the feeble pulse of the little patient; cold sweat and restlessness also indicated the amount to have been considerable; a large, firm coagulum filled a part of the space from which the tumour had been cut out. I sat beside the child for nearly an hour, waiting to see whether there would be any recurrence of the bleeding, but there was none; bladders filled with ice were applied to the neck and cheek, and the bed-clothing was reduced merely to the sheet; directions were given for cold beef-tea to be administered in spoonfuls, and all drinks for the relief of thirst to be iced. After this the child went on favourably up to night, when I saw it late; there was no return of the bleeding, but marked restlessness. I had administered six drops of tincture of opium, with directions to be repeated in four hours if necessary. After the first dose the child became composed and slept, and not until 6 the following morning was it requisite to administer the second dose; the child, having taken some nourishment, went off quietly to sleep, and did not awake until 9 o'clock A. M., the hour of my visit.

August 5th. No return of bleeding; the child freely takes nourishment, and quickly composes itself to sleep again.

In reference to the hemorrhage, which occurs frequently after operation, and which might be termed intermediary, an admirable example is afforded in this case, and it inculcates a good lesson—how the surgeon must be cautious in unwarrantably meddling. Intermediary hemorrhage takes its place between that occurring as the result of accident or wound inflicted by the surgeon—hence the term primary; and that arising at a more distant period, as the result of ulceration or sloughing, secondary bleeding. Now the intermediary hemorrhage may take place at any time between these two periods, but the most frequent is that when reaction is fully established. When reaction passes beyond the bounds to which it should be limited, then

the rush of blood which passes to the injured part finds its escape by those minor vessels which, while the patient was under the apprehension of fear, and the depressing agency of the nervous shock of operation, refused to bleed even on section, and consequently eluded the ligature; but afterwards, when the heart's action is restored, when the circulation is established, heat generated, the feeble retraction and contraction of these vessels yield to the impulsive current from above, and thus the flow. Now this bleeding continues for some time, and even briskly, but it will generally cease of its own accord; and if it has done so, the surgeon should not meddle with the clots or dressings, under the presumption that by so doing he will prevent a repetition of the mischief. No; in those cases there will very seldom be any return of it: the engorged vessels have emptied themselves, the reaction is lowered, the circulation is more feeble and balanced, retraction and contraction of the divided vessels again takes place; and further, the very production of the clots becomes gradually and effectively a temporary obstacle to the pouring out of the fluid; a few hours longer, and these vessels are permanently sealed. So much as to the management of the case when this intermediary hemorrhage has ceased. But now let us take the other view, in which this intermediary hemorrhage may present itself—where the flow of blood is persistent—where it has resisted, even for a short time, the application of cold (ice), astringents, &c.—when in considerable quantity, or when even it is but afforded triflingly in instances where the patient has been previously greatly emaciated and run down—I have no hesitation in saying it would be the duty of the surgeon not to tamper any longer with the case, but at once to remove all dressings, sutures, &c., and make diligent search to secure the vessels, to stay the bleeding.

This intermediary hemorrhage has occurred to me in many cases, after amputations, resections, and in two instances after lithotomy in the child; yet it did not seem, as well as I can remember, to act in an unkindly way, to render more tedious the recovery, or mar the result. In concluding my remarks upon this casualty, I would wish it to be understood that I acted strictly in accordance with the above tenets.

7th. Union effected throughout the entire of the cheek wounds; removed the stitch in the red part of the lip, and the line of incision was almost imperceptible; suffered the other ligatures and the needles to remain; patient free from all pain, and partakes freely of nutritious broth, crumb bread, and abundance of milk.

9th. Removed the needles and stitches; I suffered them to remain thus long because not productive of the slightest irritation, and they yielded such an efficient protection to the recently united parts, against any injury from the unguarded movements of the child. The patient from this time rapidly improved in health, being now able to eat abundantly, which it was prevented doing prior to the operation. On the 12th the ligature of the facial artery was cast off, and on the 14th the track through which it was brought out upon the cheek was obliterated. On the 15th the child was up and running about the ward, and on the 25th was dismissed cured.

The improved condition of the child when it was brought to see me at the hospital in a few weeks later, was most striking: he was large, fat, and sprightly. The accompanying drawing is an accurate representation of his appearance, and a most excellent likeness. (See Plate V., Fig. 4.) The extent of bone taken away, and the form of the tumour, are each depicted of full size. (Fig. V., Plate 5.)

Case VII.—*Excision of the Metatarso-Phalangeal Articulation of the great Toe; Recovery, with perfect use of the foot.*

In speaking of this operation, Professor Fergusson, in the last edition of his Practical Surgery, says at page 445:—"It happens sometimes that the disease [caries] is limited to the articulation between the great toe and its metatarsal bone. In such an instance, Professor Pancoast has employed resection of the joint, a proceeding which, so far as I know, has never been done in this country; it is said to have also been performed by Professor Regnoli of Pisa."

Excision of the metatarso-phalangeal articulation has been most successfully performed by M. Fricke; and Kramer exsected the anterior extremity of the first metatarsal bone in 1826, for a compound dislocation. M. Josse[a] speaks of a case in which the luxated head of the first metatarsal bone was exsected, and the movements of the great toe after were preserved. M. Blandin in one case exsected the anterior half of this bone for a spina ventosa; in another case he removed the three anterior fourths of it[b], being an inch and a half in length; while M. Jobert has removed the anterior half for caries. Roux has likewise successfully performed this operation; and Fricke has been no less fortunate in removing the phalangeal articulation of the

[a] Journal de Médecine et de Chirurgie, p. 352.
[b] Journal Hebdomadaire de Médecine 18th October, 1828.

same member in another case[a], and M. Champion[b], has twice exsected the posterior extremity of the first phalanx of the great toe, in a state of caries, and in both instances the patients recovered perfectly. Meditating upon these cases, and emboldened by their success, I, too, achieved my object as satisfactorily as could be anticipated or desired.

Mary Bryan, aged 21, admitted to Mercer's Hospital, November 6, 1857; a very interesting-looking girl, but of purely scrofulous diathesis. Her complaints as to the hopes of relief were incessant, she having suffered for such a length of time, and without receiving any material advantage. Her hopes were greatly shaken, and, being in a marked way dependent upon her labour as a means of support, the anxiety that she endured as to the chances of a permanent benefit was most painful to witness. She dates a well-marked history of the case to have its commencement so far back as a period of five years; at this time she remembers that a slight injury, a bruising of the dorsum of the foot, gave her great uneasiness; the part became immediately swollen, intensely painful; however, by leeching and perfect repose, the truly great suffering was relieved, and counter-irritation, blistering, &c., completed the removal of pain. Thus she got over this inflammatory attack consequent upon the injury, no doubt modified and magnified by the constitutional taint, the idiosyncracy to perverted action; but again in the two successive years, additional mischief supervened, but of a slow character; gradually and steadily the parts thickened, with a dull, heavy, tingling pain, sometimes absent altogether, at other times sufficiently acute to prevent sleep. During the past year, an abscess formed in the dorsum of the foot, and discharged itself; matter flowed freely at first, and steadily oozed after, and even up to the present time, that of the above date of her admission. Various means were tried to check the discharge, to cure the part, before she placed herself under my care; but she was hurriedly compelled to do so by a sudden increase of swelling, enlargement, pain, incapacity to move, and in fact she was so bad that she had to take to bed, where she had remained three weeks previous to my seeing her.

On a careful examination of the foot, it became apparent, by a cautious use of the probe, that the anterior part of the metatarsal bone of the great toe, together with the phalangeal articulation, was involved in destructive caries. I resolved at once to liberate the parts, and cut out the diseased bone, taking

[a] Velpeau's Operative Surgery, vol. iii., p. 816. [b] Thése, p. 93. 1815.

the entrance through the sinus as my guide; a director was passed posteriorly, and the parts freely slit upon it; so in like manner the instrument was turned forwards, and a similar division made at once down to and along the track of this carious bone. The edges of the wound were drawn laterally or asunder by copper spatulæ, and thus a free access was afforded to the diseased bone; the anterior third of the metatarsal bone was hopelessly affected; so I dissected around it, and, finding the articular surface of the phalanx, where in contact with the metatarsal bone, stripped of its cartilage, I clipped off with a bone forceps the obnoxious parts, and having thus, as I conceived, taken away all, I cut across the extensor tendons to prevent any cocking up or distortion of the unguinal phalanx. The entire was then steadied in a suitable splint, and bandaged so, a few stitches having been previously inserted so as to retain the flaps in accurate contact. The entire healed without any troublesome sinuses or annoyance of any kind, and the young woman was walking upon the limb on the 20th of December. Six weeks after the operation she was dismissed from the hospital; and a few days later she returned to service, her occupation being that of waiting upon ladies. I have frequently seen this young person since, and certainly the result of the operation is most gratifying: months have passed now, and she has not suffered the slightest pain or inconvenience in it, though constantly moving about; the only disfigurement is, that the length of the great toe is diminished; the intervening tissue, fibrous, dense, almost cartilaginous, between the first phalanx and the point of section of the metatarsal bone, has retracted the phalanx, and thus shortened the internal line of the foot, but the section of the tendon has effectively acted in preventing its elevation; when a boot is put on, with a small morsel of cotton in front, it would be impossible to observe any difference between it and the sound foot. I have also had the boot constructed for her with a thin steel plate, half an inch in breadth, running along the sole, corresponding to the site of the metatarsal bone and great toe, affording the most steady, efficient, and complete support, and at the same time sufficiently springy to allow the arch of the foot to fulfil the objects of its construction.

Art. II.—*Medico-Legal Observations upon the Case of Amos Greenwood, tried at the Liverpool Assizes, December,* 1857, *for the Wilful Murder of Mary Johnson, and sentenced to Penal Servitude for Life.* By W. R. Wilde, F. R. C. S. I., Surgeon to St. Mark's Hospital, Dublin.

In the "Times" of Monday, the 7th of December, 1857, I read an account of the trial of Amos Greenwood, aged 22, for the wilful murder of Mary Johnson, a child under ten years of age, who died, as was alleged, from mortification, the result of violence and disease received during sexual connexion perpetrated on the 22nd of October previously. I was much struck by the account given in the newspaper: having, as many of my readers are aware, paid some attention to the medico-legal question of rape, and written a little work upon the subject[a], I felt that this might possibly have been a case in which an error had been committed, from popular prejudice, on the one hand, and mistaken medical opinion on the other. I therefore immediately communicated my suspicions to my friend Mr. Lawrence of London, who, in reply, stated that he also had been struck with the peculiarity of the case as reported, agreed with me as to the likelihood of a mistake having been made, and advised me to communicate with the Judge who had tried it, to whom he had also written upon the subject. Out of that communication has arisen the following statement. Before however, I proceed to discuss the evidence, I beg to premise a brief history of the case, every particle of which was sworn to, as I learned from attested copies of the depositions of the witnesses, and of the statements made both at the coroner's inquest and the trial.

The parents of the deceased Mary Johnson, as well as all the other parties connected with this case, were in a very humble walk of life—costermongers—who "obtained their livelihood by travelling about the country with a stall, for the purpose of selling fruit, &c., at the various fairs and markets." In October the little girl was employed to take care of a baby by a Mr. and Mrs. Handcock, who were in the same line of business. About the middle of the month Greenwood was also hired by the Handcocks to assist in their vocation. On Thursday, the 22nd of October, this family proceeded to Heap, a village near Manchester, where a fair was about to be held. That night the whole family, composed of five individuals, slept in

[a] Medico-Legal Observations upon Infantile Leucorrhœa. London: Churchill, 1853.

a lodging-house, in one small room, in which were two beds, one occupied by the Handcocks and their child, and the other by Amos Greenwood and Mary Johnson. The latter went to bed first, about half-past 7 o'clock; Greenwood followed in about two hours; and within a quarter of an hour or twenty minutes the Handcocks retired to rest. The room was very small, and the beds were within a yard of each other. No disturbance occurred, and no complaint was made during the night. Early the next morning they all took the train for Wigan fair, Mrs. Handcock packing up, and "taking with them the bed on which the prisoner and the deceased slept, as it was the one usually kept and used in the booth or caravan, on their travels from place to place:" she did not notice any stain or other mark upon it. Mary Johnson made no complaint, and appeared to be in perfect health all that day, (Friday), also the next day (Saturday); and up to Sunday evening, when it was remarked that she walked lame, and appeared to be in pain; when questioned, she complained, in the presence of the prisoner and a woman named Butterworth, of a "smarting in her thighs." She was sent to bed early; and upon being examined by her mistress her genitals were found to be sore, and her thighs excoriated. All that night she complained of great pain, and the next morning she was brought to Mr. Winnard, surgeon, of Wigan, who examined her, believed the case to be one of vaginitis, prescribed an astringent lotion and some purgative medicine, informing her friends that she was very ill, and would require much attention. Mr. Winnard saw them twice; no accusation was made in his presence on either occasion; no suspicion raised as to the cause; but the people asked him "if swallowing a sixpence could cause the state the child was in." That evening Mrs. Handcock and the girl proceeded to Heywood, where her disease grew rapidly worse. She was then pressed by her friends to confess to the cause of her ailment, but for a long time she continued to protest in having nothing to confess, although, as shown by the depositions, several suggestions were made to her by the females who surrounded her. Finally she was told that, unless she made a confession, she should be left to die, "as that nothing would do her good." It is asserted that she then stated that upon the night when they all slept in the same room at Heap, and while in the bed adjoining her mistress, her bed-fellow, Amos Greenwood, had connexion with her, and produced the violence which her person then exhibited.

An unlicensed practitioner was then called in, who put her upon the use of mercury. Sloughing and mortification set in,

and proceeded with great rapidity; then Mr. Pickford, surgeon of Heywood, saw her; he discontinued the mercury, and prescribed bark. A magistrate took her deposition on the 2nd of November, but not as a "dying deposition," although afterwards used at the trial. The girl's symptoms proceeded with great rapidity, the mortification extending over the pubes in front, and the whole of the nates behind. She died on Thursday, the 5th of November, about thirteen days after the alleged intercourse, and ten from the first discovery of the disease. A post-mortem examination was made, and a coroner's inquest held. The prisoner was arrested, and found to have venereal warts on his penis. Mr. Jameson, who first attended her at Heywood, swore she died of "mortification of the genitals, brought on by laceration, inflammation, and venereal poison."

The case was tried at Liverpool on the 5th of December. The jury found the prisoner guilty of manslaughter, and Mr. Justice Wightman sentenced him to penal servitude for the term of his natural life.

In my letter to the Judge, dated 11th December, I endeavoured to point out what appeared to me unexplained questions suggested by the trial—called his attention to the cases related by Percival and Kinder Wood, showing that medical men were occasionally mistaken; and that, even if it were venereal she had, the child, having slept in the same bed with the prisoner from the 14th to the 22nd of October, might have been infected without any attempt at connexion. I stated that I could not find any record of death from mortification in a child like Mary Johnson, as the result of gonorrhœa or syphilis; and I pointed out how prone to deceive children are in cases of leucorrhœa, &c. Mr. Lawrence's letter was somewhat to the same effect.

His Lordship was good enough to reply on the 19th of the same month, and among other matters said:—"It was proved to the satisfaction of the jury that the prisoner, who slept with the deceased, a female child of nine years of age, had *forcible* connexion with her, and that her private parts had been *dreadfully lacerated*, and the *perineum ruptured;* that the prisoner was at the time labouring under the venereal in a very advanced stage; and that when the medical men saw the child, which was not until several days had elapsed, she exhibited symptoms of the venereal disease, attended with inflammation so violent, that the parts mortified, and she died. The cause of death was not attributed to the disease *only*, but to the disease and the laceration. There may be infantile diseases which in their symptoms so closely resemble syphilis that they may

be mistaken for it; but in the present case why should the symptoms be attributed to some infantile complaint rather than to the venereal disease, when it was proved that the man who had connexion with her was infected with that complaint in a high degree?"

Still not feeling satisfied, from the history of the case and the symptoms, that the child died either of syphilis or from forced connexion, or both, I entered into communication with Mr. Cobbett, the lawyer who was assigned by the Judge *at the trial* to defend the prisoner, after he had been arraigned; and through his kindness I procured copies of the depositions, the Crown briefs, and also a history of those portions of the case which did not appear in the newspapers. I also communicated with the several practitioners who examined the deceased; and having satisfied myself that the child died of that description of unhealthy, spontaneous inflammation, analogous to *cancrum oris*, which occasionally attacks persons at her time of life, now known as *Noma Pudendi*,—I drew up the following statement, which I then forwarded, together with the list of questions, given at page 69, to twelve medical men, whose opinions, from their knowledge of the subject, as well as their high standing in the profession, would, I thought, entitle them to consideration:—

"At the recent Liverpool Assizes, Amos Greenwood, aged 23, was indicted for the murder of Mary Johnson, a perfectly healthy child under ten years of age, and was found guilty of manslaughter. The cause of death was stated to be rape and venereal. The prisoner and deceased slept, in the same bed, in a room with the other members of the family with whom they resided. On the night of the 22nd of October, 1857, the persons who slept in the same room swore to there having been no cries or any noise whatever during the night. The girl rose the next morning, and went to her work as usual, made no complaint, and uttered no expression of pain. Three days afterwards, a woman, remarking that she seemed to be in pain, examined her, and found her sore in the genitals. The child is said to have stated that the prisoner had had connexion with her on the night of the 22nd, and had 'hurt her greatly.' She was taken to a medical practitioner on the 26th, who seemed to make light of the matter, and gave her some medicine. On the 27th she got worse, and two other practitioners were called in, who stated that the perineum was lacerated; that there was extensive ulceration of the labia, extending into the rectum; laceration of the genitals, the hymen ruptured, and a purulent

discharge from the vagina. She was treated for syphilis, as it was discovered that the prisoner had warty excrescences on the penis, and also syphilitic sores. Mortification set in on the 29th, and she died on the 5th November, thirteen days after the alleged connexion. On the 7th a post-mortem examination was made, when the following appearances were noted:—Mortification of the genitals, extending downwards and backwards to the sacrum. The whole of the soft parts in the genital region, including the urethra, labia, and vaginal orifice, were mortified to the depth of two inches; the rectum and nates were also mortified; the external surface of the bladder showed several patches of inflammation, and its lining membrane was coated with purulent matter. The whole mucous lining of the vagina was black with mortification."

Fortified with the answers received, I addressed the following letter to the Judge:—

"*Dublin, January* 30, 1858.

"My Lord,—I beg to acknowledge the receipt of your note of the 23rd ultimo; I have also been favoured with the perusal of your letter to Mr. Lawrence; I have likewise had communications with Mr. Cobbett, the prisoner's counsel; and have received the depositions of the witnesses in the case of Amos Greenwood. I have, in addition, addressed a circular to, and received answers from, some of the most eminent physicians, surgeons, and medical jurists in the kingdom, respecting this case; and from the investigations I have made, I feel more and more convinced that Mary Johnson *died from natural causes, neither the result of violence nor syphilis.* In endeavouring to make this plain to your Lordship, I labour under the same disabilities which a lawyer would in making me understand the bearings of a legal argument. In both cases the mind requires to be prepared by previous application to the subject, and your Lordship may not have a medical, as I may not possess a legal, mind.

"Your Lordship lays much stress upon the assumed fact that 'the private parts of the child were extensively lacerated, and the perineum ruptured;' and that 'she made no complaint for some days.' On the first of these points I would respectfully join issue with your Lordship, or, more properly speaking, with the evidence adduced to support that allegation. The perineum, or the septum which divides the vagina and anus, it should be remembered, is an exceedingly sensitive part, highly endowed with nerves, and so very vascular that a solution of

its continuity must be attended with considerable hemorrhage and exquisite pain. Some accoucheurs, men particularly versed in the anatomy and pathology of this part, declare that it could not be ruptured by the penis in a girl between nine and ten years of age, healthy and well formed as the deceased; while those who believe that it might 'possibly' be ruptured give it as their opinion that it is a most unlikely and improbable case. Granting, however, the possibility of this frightful laceration, in which the vagina and rectum must have been thrown into one, I fearlessly assert—and in this opinion I am supported by the highest authorities in Great Britain—that unless it can be shown that Mary Johnson was at the time under the influence of a narcotic or an anæsthetic, she must have given expression to her feelings in loud cries, could scarcely have helped resisting violently, and must have bled profusely.

"Now, I am told it was sworn before your Lordship by Mrs. Handcock, who, with her husband and child, slept in the same room, within one yard of the prisoner, that the deceased made no complaint whatever during the night, nor when she went into the room, twenty minutes or half an hour after the prisoner had retired to bed; and that neither before nor after she went to bed did she hear any cries or struggle; moreover, it appears that this Mrs. Handcock, the child's mistress, swore that she and Greenwood 'slept that night on *clean sheets*, which she (Mrs. Handcock) rolled up on Friday morning, to bring to Wigan, and *saw nothing on them;* made the bed, on Friday, in a booth in Wigan, and saw nothing; the same on Saturday, Sunday, and Monday.'

"Now, my Lord, I again assert, that if Mary Johnson was torn and lacerated to the extent that was asserted at the trial, and which you evidently believe, there must have been considerable hemorrhage, and the sheets must have exhibited some marks of it. On Tuesday, four days after the alleged assault, some bloody spots were observed on the sheets of the same bed in the booth at Wigan; but then, my Lord, I am given to understand, and it was so stated by witnesses in court, that Greenwood had not slept with Mary Johnson upon the three previous nights. Furthermore, these blood-stains were discovered only after the diseased state of the child had been observed, and she had been examined by a medical man. Mr. Cobbett has written to me to say that Mrs. Handcock proved distinctly that both prisoner and deceased slept in night-clothes, and says —'his clothes might have been got rid of: at all events, there

was no evidence about the state of his shirt, but there was about the child's night-shift, viz., *that no blood or stains were observed on it.*'

" Supposing, again, that all this violence had been perpetrated, it is my opinion, and the opinion of all practical men acquainted with the subject, that the deceased child could not have risen the next morning, and proceeded about her ordinary business during that and the two following days, travelling from place to place,—certainly not without making some complaint as to her state. It should be remembered that in cases where the perineum is completely ruptured, as occurs occasionally in child-bearing, there is usually incontinence of fæces, a symptom which it would have been scarcely possible to conceal, and which must have attracted the attention of those about the deceased. There was no evidence whatever as to a *recent* laceration; and upon the fifth day, when seen by Mr. Jameson, who is said to be an assistant of Mr. Pickford, a surgeon at Heywood, it is quite manifest, from the state of ' ulceration, sloughing, and mortification' she was in, that he could not then say whether the destruction of the perineum was the result of *laceration* or *ulceration*. With respect to this gentle man's testimony, I beg to append an extract from Mr. Cobbett's letter:—' He said that there had been much violence to the parts, and much laceration, also a vaginal discharge; but did not satisfactorily show whether the discharge arose from clap or syphilis: he said it was *venereal*, and, in his opinion, *gonorrhœa might degenerate into syphilis.*'

" Now, my Lord, I know nothing of the age, experience, or qualifications of Mr. Jameson; but I can assure your Lordship that if such an answer were given by a student when being examined for his diploma in surgery, he ought not to receive his license. From inquiries I have recently made, I cannot find that this gentleman belongs to any College of Physicians or Surgeons in Great Britain or Ireland; and I am given to understand that he is, or has been, a druggist at Heywood, and occasionally assists Mr. Pickford; but I presume your Lordship inquired as to the *qualifications to practise* as well as his pathological acquirements for making a post-mortem examination when receiving his testimony in a case of life and death, and in a matter requiring a combination of practical as well as medico-legal knowledge of more than the ordinary description.

" Mr. Pickford, the surgeon whose assistant Mr. Jameson was said to be, did not attend the child till shortly before her

death, when it was impossible for him to say (if the account which I have received of her state then be true) what was the remote or original cause of her death. It is stated that the child was treated for syphilis. If that treatment consisted in the administration of mercury, every person conversant with that disease will tell your Lordship that such treatment was more likely to hasten her death than to promote her cure. With respect to the syphilitic infection, there has not been, in any of the original reports or depositions attributed to Mr. Pickford or Mr. Jameson, all of which are now before me, the slightest attempt at defining the character of the sores. All that is stated is that the genital organs were in a state of 'ulceration, sloughing, and mortification.' But these symptoms do not necessarily form syphilis because they happen to be seated on the female organs of generation. Moreover, it is asserted that when first seen by Mr. Jameson on the fifth day, 'there was extensive ulceration of the labia and along the perineum to the rectum, and a purulent discharge from the vagina.' Now, on the one hand, this purulent discharge is a symptom of gonorrhœa, leucorrhœa, vaginitis, and noma pudendi, but not of syphilis; and the best authorities upon this latter disease assert that the state of ulceration (which, from its extensive nature, must have been in progress for at least a couple of days before Mr. Jameson saw her, and, consequently, bearing date from the third day after the alleged connexion) is incompatible with the known laws of syphilitic affections. With respect to the prisoner, all I can learn is that, on being examined by Mr. Jameson on the 29th of October, 'he had warty excrescences on the penis, and beneath the prepuce syphilitic sores.' This is, however, rather against the probability of his being able, without very great pain to himself, to have had forcible connexion with the deceased.

"Your Lordship states that 'the Jury were satisfied that her (the child's) story was true as to the *fact* of the prisoner having had connexion with her;' but the Jury had no opportunity of seeing the child—I will not say cross-examined, but properly questioned on this matter. And while upon this subject I beg to refer you to the facts set forth upon the various trials related in my work upon 'Infantile Leucorrhœa,' and in particular to Sir A. Cooper's opinion, which I have quoted at length in the preface—see pp. 9, 10, where he used the expression that 'a multitude of persons have been hanged by such a mistake' as that which I believe has been made in the case of Mary Johnson. The child met her mother the next morning (23rd Octo-

ber), and said nothing about the frightful injury she had suffered the night before. Neither did she mention it to Mrs. Handcock, with whom she lived for three days, nor, in fact, to any one, until her state was remarked by a woman named Butterworth; and according to the report given of the trial, it was two days after this when she stated that violence had been offered her. But whether such statement was made as the result of leading questions of the women by whom she was surrounded, as is almost invariably the case, or a voluntary declaration on the child's part, did not appear to the public; certain it is, that the moment the mother, friend, or attendant of a child discovers an irritation or any discharge upon the genitals, she almost invariably and immediately jumps to the conclusion that the child has been 'meddled with by a man,' and not only interrogates the child to that effect, but often either persuades her into the belief of the crime, or punishes her until she confesses to an act that has never been committed. These opinions are not founded on isolated cases, neither are they new; they are perfectly well known to the medical profession, and besides the instances related by myself, numbers of such cases have been recorded during the last thirty years. In all the fictitious cases that I have known, the disease has been discovered by a *second* party, and the accusation brought out by a series of stereotyped questions, which have remained almost the same from the days when Cooper wrote until now.

"I have just received a letter from Mr. Cobbett, and in answer to my question respecting the way in which the information was first obtained from the child, he writes:—'The child at first *denied* that anything had been done to her, on their asking if some lad had been putting his hand up her coats;' after this, they told her *they 'would not be able to give her anything to do her good,'* or to that effect, unless she told the truth. And again, according to a report of the case sent me by Mr. Winnard, the first surgeon who saw her, the women about her 'asked her if any boy had been playing with her? She said, No. Any one putting his hand up her clothes? She said, No. Then they said, *if she did not tell the truth, she would die, that nothing could be got to ease her, and she would be worse,* &c. That she then said Amos Greenwood had on the Thursday night been upon her, and hurt her very much.' Here I respectfully submit there was both a *suggestion*, a *promise*, and a *threat*, after the usual form 'in such cases made and provided,' a threat that she would be allowed to die unless she accused some one! This is all I can learn now of the interrogations, but how much further these questions were pressed, or what names were sug-

gested, I know not. I firmly believe, however, that but for these suggestions and threats, the child would have died, and *made no accusation of any one.* No doubt, this did not appear in evidence. Who at the trial was to ask such a question? Even if such a fact were elicited, it is possible that the Jury might not have appreciated it—it would alone have been for the astute mind of a Judge to have seen and valued the bearings of such a statement, if true. Moreover, I would respectfully put it to your Lordship that this child had no object in concealing from her parents or mistress the frightful state of laceration—her vagina torn and bleeding, her perineum ruptured and split into the rectum—when she *was neither influenced by love, passion, nor fear.* Had the prisoner lacerated to the same extent any other portion of her body, I ask your Lordship, not merely as a judge in law, but as a judge of human nature, whether she would have concealed the fact for four days, until compelled to go to bed by the agony she was suffering?

"I have been informed by Mr. Winnard, that on their taxing Greenwood with the perpetration of the crime, he went to the girl directly, denied it, and asked for a police-officer to be sent for.

"In those cases to which I drew public attention some years ago, and which I had the honour of submitting to your Lordship, the disease which caused the false accusations to be made was not of a fatal character, and therefore not applicable in every respect to the case of Mary Johnson. Permit me, therefore, to call your attention to the following. In this same town of Manchester (to which the parties in the present instance belong) a precisely similar case occurred in the year 1791. A child aged four years was discovered by her mother to have her female organs highly inflamed, sore, and painful; 'the child had slept two or three nights in the same bed (says the Report) with a boy fourteen years old, and had complained of having been hurt by him in the night.' The child died of the disease ten days after it was discovered—about the same period as in the case of Mary Johnson. Mr. Ward, a most distinguished surgeon, then attached to the Manchester Infirmary, attended the deceased, upon whom a coroner's inquest was held. He has left the following record, which may be found in the earlier editions of Dr. Percival's Medical Ethics, and has been frequently referred to in works on medical jurisprudence, and also in those on the diseases of women and children, both home and foreign:—'The circumstances above related having been *proved to the satisfaction of the Jury*, and being corroborated by the opinion I gave, that *the child's death was occasioned*

by external violence, a verdict of Murder was returned against the boy with whom she had slept.' In the interval between the inquest at Manchester and the trial at Lancaster, several other *fatal* cases occurred from a similar affection, and, to the lasting credit of this truthful man, he thus writes:—'I was then convinced I *had been mistaken* in attributing Jane Harrison's death to external violence, and I informed the coroner of the reasons which produced this change of opinion.' When the case came on for trial, this fact was stated to the Judge, who observed to the Jury, 'that he therefore hoped they would acquit the prisoner without calling any witnesses; with this request the Jury immediately complied.' Since then I have not been able to discover that any other person has been tried in England for the murder of a child by rape, or rape and disease conjointly, until this trial before your Lordship on the 5th of December last[a].

"The next medical account of this disease is styled—'A History of a very fatal Affection of the Pudendum in female Children,' by Mr. Kinder Wood, surgeon in Oldham, and which was communicated by the late Mr. Abernethy to the Medico-Chirurgical Society of London in 1815. This paper has been published in the records of that Society, and I have requested Mr. Lawrence to lend your Lordship a copy of that work, should you desire to see it. In Mr. Wood's cases all the symptoms described in Mary Johnson's case are graphically set forth; and out of twelve instances which he records, ten proved fatal. Indeed, he says—'that when the ulceration is deep and extensive, *I have never seen the patient recover;*' and again:—'I have seen the inflammation spread over the mons veneris, and be succeeded by deep ulceration, progressively increasing as long as life continued; the external organs of generation are now *progressively destroyed*,' &c. In one case 'the perineum was inflamed and covered with aphthæ, which also incrusted the anus; the discharge was thin, copious, and offensive, and had *inflamed the top of the thigh*, where it had been suffered to remain. It is a very remarkable fact that in nearly all the cases of this disease, or of simple vaginitis, one of the earliest symptoms, and that which for obvious reasons soonest attracts

[a] In Ireland I know of but one case of death from rape upon a child, and it arose from that popular superstition, still unhappily prevalent among the ignorant, not only in the British Isles, but also in other parts of the world,—that sexual diseases in the male (gonorrhœa or syphilis) may be cured by having intercourse with a virgin. In the year 1840 a soldier violated an infant eleven months old, and she died the next day. Yet in that case, although the cavity of the abdomen was laid open, the perineum was not quite ruptured. See London Medical Gazette, vol. xxvi. p. 160.

attention, is the excoriated state of the inside of the thighs. Now I find in Mrs. Handcock's original depositions the following statement:—'On Sunday night (25th), at Wigan, Mary Johnson, in the *prisoner's presence* at the Crawford Arms, said to me that her thighs smarted.' But smarting of the thighs from excoriation, the very first symptoms worn to in this case, *is no sign of rape or of syphilis.* Moreover, I submit that the child's openly stating, in the prisoner's presence, the cause of her distress, without making any accusation against him at the time, and her denying for three days after that any one had connexion with her, is incompatible with the truth of the subsequent accusation, at least it would be so to medical minds. In Case II., related by Wood, the perineum was particularly affected; the disease extended round the anus; and the open surfaces were deep and foul, secreting largely a thin, offensive matter. These were the only two cases seen early enough to be benefited by treatment.

"Now, my Lord, let me call your special attention to the following paragraph, by the same acute observer of disease and human nature, upwards of forty years ago:—'There is one point of view in which a consideration of the disease is highly important. The instances in which parents, on behalf of their children, bring forward individuals upon the charge of rape are *disgustingly frequent; and it can be scarcely doubted that this disease has been frequently considered in court as evidence of violence and venereal infection; inflammation, ulceration, and discharge*, having had always *particular attention* in a consideration of the evidence.' I regret to say, these cases, so pertinent to that of the trial at Liverpool, and these truthful remarks, which one would imagine had been elicited by the case of Mary Johnson, do not appear in the prominent light in which they should in the last edition of the only English work on Medical Jurisprudence to which lawyers and medical men now refer, although they are to be found in works published in other countries.

"Now if the medical man and his assistant, who saw this case, in what must be acknowledged an advanced stage, were not acquainted with these cases related by Percival and Kinder Wood, I respectfully submit they were not adequate witnesses; and were as likely to be mistaken, with respect to the true nature of this affection, as Mr. Ward was sixty-seven years ago, or as the surgeon described by Sir A. Cooper in his Lecture on the subject, or as the London practitioner mentioned by Mr. Lawrence in his letter to me in 1853, published at page 24 of my tract,—to which letter I would the more parti-

cularly direct your Lordship's attention, because you will there find that the Judge who presided at the Old Bailey when the case was tried read during the trial this very paper of Mr. Kinder Wood's in the Medico-Chirurgical Transactions, but with which it does not appear that any one connected with the prosecution, defence, or trial of Greenwood was acquainted.

"As soon as I was informed of the names of the medical witnesses, I wrote to Mr. Pickford of Heywood, and to Mr. Winnard of Wigan. From the former gentleman I particularly wished to know, what was the treatment employed by him and Mr. Jameson, in the case of Mary Johnson; and also whether either of them was acquainted with the instances mentioned in the Medico-Chirurgical Transactions above alluded to, and the disease described by Kinder Wood, and which is now generally known by the name of *Noma Pudendi.*

"Mr. Winnard, of Wigan, who first saw the child after her state was discovered, and who *must* have observed the rupture of the perineum and laceration of the vagina, if such existed at this time, no matter how trivial his examination, has afforded me the following history of his knowledge of this case, as well as of the evidence which he gave at the trial:—'Two women brought Mary Johnson to me on Monday morning, the 26th of October, and said they wanted something for the little girl, who was very sore. *I opened the labia;* the parts were inflamed, inside livid; lips swelled, and had *ulcerated spots all over*, varying in size from that of a pea downwards, and covered with yellowish-white sloughs. I ordered her some black wash and a purgative powder. In the afternoon of the same day one of the women came to me and asked could swallowing a sixpence cause such a sore. The answer was, 'Certainly not;' and that the girl was very ill, and required care. Several days afterwards a police-officer came from Heywood and asked me to give a certificate as to what was the matter with the girl: this I refused, nothing having been said to induce me to be minute in my examination. The next I heard was when a policeman came and subpœna'd me to the Assizes, saying that mortification came on, the girl died, and a man was in custody charged with a rape upon her. At the trial I said I made but a slight examination, but considered the case one of *severe vaginitis* when I saw it; *that there was nothing said to me on either the first or second occasion that I saw these people about violation.* That when they were in Wigan they lived in a very dirty, foul place, called the "Pig Market;" and that in that yard I had then a severe case of vaginitis, which had only been arrested by repeated applications of lunar caustic. That I

thought syphilitic virus coming in contact with a mucous membrane abraded might induce such symptoms as I saw on the child; and that I thought vaginitis might pass into ulceration and mortification; but that I believed such a disease was more common from two to five years of age.' This evidence, I respectfully submit, should have been sufficient, if properly placed before the Jury, to show them that on the Monday after the alleged offence, and *prior to any accusation* being made, the child was labouring under a well-known disease peculiar to her age and condition of life; and that she did not exhibit any sign of having suffered from violence three days before. From the foregoing recital it appears to me utterly impossible that Mr. Winnard could have overlooked even a partial rupture of the perineum, if such then existed. It is, however, quite compatible with the usual rapid nature of the disease, that the sloughing and ulcerative process may have so far advanced in a day or two, that a person not acquainted with such diseases might mistake it (especially when he was *told* that a rape had been perpetrated) for the result of violence. Mr. Winnard was not present at the post-mortem examination, which I think he should have been.

"I also received answers from Messrs. Pickford and Jameson. The former gentleman says :—'*I must confess that I was not aware of the fatal cases to which you allude in your letter when I was examined at the trial; nor even yet have I seen any description of them;* so that I cannot say whether Mary Johnson's appearance in any way resembled them or not.' This is the more remarkable, as the disease is described (almost in the terms employed by Messrs. Pickford and Jameson) at page 602 of the 'Surgeon's Vade Mecum,' by Mr. Druitt, the seventh edition, which is, I believe, in the hands of nearly every surgeon in Great Britain and Ireland.

"Although your Lordship has already heard Mr. Pickford's statement, I beg leave to append, from his manuscript, the following very characteristic report, which he says is the evidence that he gave both at the inquest and on the trial:—'When I first saw Mary Johnson, which was on the 30th of October, 1857, I found that *mortification* of the upper part of her genitals had then commenced, and there was *an extensive phagedenic ulcer* on the lower part of her genitals, spreading towards the nates. I again saw her on the 1st of November, when the whole of the soft parts between the pubes and the sacrum appeared to be in a state of mortification. On my third and last visit, which was on the 4th of November, *the skin of her nates had disappeared* to the extent of several inches, and had left

the cellular tissue completely bare and black. She died on the 5th; and on the 7th Mr. Taylor, the Union Surgeon for this township, Mr. Jameson, and myself, made a post-mortem examination of her body: when we found a mortification of her genitals that extended from the pubes downwards, and as far backwards and upwards as the sacrum. The whole of her genitals, including the mons veneris, labia pudendi, urethra, and vaginal orifice, were a complete mass of mortification; the anus, rectum, and nates, were in a similar state of mortification to a great depth; on opening the abdomen and removing the pubes, we found the bladder quite empty, and rather inflamed externally, but internally there were numerous patches of inflammation, and the whole of its mucous lining was covered with thin purulent matter. The whole of the lining membrane of the vagina was black through mortification; but the uterus did not exhibit any unnatural appearances.'

" So far, so good. Let this very proper description be handed to any jury of scientific medical men, and they will at once decide that Mary Johnson died of *noma pudendi*. However, Mr. Pickford adds the following, which I fearlessly assert was not warranted by the foregoing appearances, either in life or after death, had not his mind been prejudiced by the previous statement that a rape had been committed:—' The conclusion that we came to was—that the immediate cause of Mary Johnson's death was mortification of her genitals; which mortification was the consequence of an inflammation that must have been produced either by extreme violence, or by venereal poison, or most probably by both.'

" Mr. Jameson's statement it is unnecessary to quote at length, except so far as it bears upon the direct question at issue. He says that, having been first told by Betty Handcock, on October 27th, that Mary Johnson ' had been assaulted by Amos Greenwood, on the Thursday night previous, I proceeded up to the bed-room, where she was lying in bed; I then asked her, previous to examining her person, to tell me all about the affair, and the *truth*. She began by saying that, some time during the Thursday night, she awoke and *found Amos Greenwood lying upon her*, and that he had put his ' fie-for-shame' into hers; that he kept moving about upon her, she thought, about *half an hour;* she frequently told him to get off her, but he still continued; and that just before he did so, all at once he gave her great pain, and she felt as if she had been cut open with a knife."

" From this we learn that Mr. Jameson, instead of proceeding, as a medical man, to examine the person of the child, began

by inquiring into the legal history of the case, and, therefore, *preparing* himself for finding a laceration of the genitals before he had been taught even the anatomy of these parts. We also learn a most important fact, which I would particularly press upon your Lordship's attention, that, according to Mr. Jameson's statement, the child awoke by finding the prisoner 'lying upon her,' and that he remained 'half an hour' in that position; therefore, the act must have been committed long *after* the Handcocks, *who occupied a bed which was sworn* in evidence to have been *within one yard* of that occupied by the prisoner and the deceased, had retired to rest! Does your Lordship believe that this act could have been so committed without the screams and struggles of the child being heard by her mistress, who was within a few feet of her, and to whom she could appeal when she felt 'as if cut open with a knife'[a].

"The remaining portion of Mr. Jameson's evidence is, that the prisoner Greenwood was sent for to the booth, when '*he, of course, denied it;*' and that, when he examined him, he 'found the prepuce covered with warty excrescences, and on the glans were several sores, from which there was a very offensive discharge.' This is the first time I have heard or read of a '*very offensive* discharge' from venereal sores on the glans penis, except in cases of sloughing or ulceration, which it is manifest was in this instance utterly impossible: but the expression here used by Mr. Jameson tallies with the '*offensive discharge*,' the result of mortification in the child said to be the object of the prisoner's assault.

"The medical portion of the case is thus described by this gentleman:—'I found the organs of generation externally swollen and very much inflamed, *and here and there small ulcers;* from the vagina came a very profuse sanious discharge; she was suffering great pain, the perineum being lacerated. I was able to pass my fingers easily up to the uterus, the hymen being also ruptured; the discharge had inflamed the surrounding parts.' The small ulcers here and there were the aphthous sores described by the various authors who have written on this disease, but neither the result of rape nor syphilis. As to the perineum being *lacerated*, it is quite manifest that it would not be possible even for an educated practitioner to state whether the rent he *then saw* was the result of *ulceration* or

[a] "In the second explanatory depositions of Mrs. Handcock, after the child's death, which are now before me, she says, 'I asked [the child] why she did not call out? and she said she shamed.' And thus, if the evidence be true respecting the ruptured perineum, she suffered the most excruciating agony when she might have relieved herself by calling to her mistress."

laceration. His treatment consisted in the immediate use of mercury for the three following days, until Mr. Pickford was called in, who most properly ordered the mercury to be discontinued, and quina to be given instead.

"Mr. Pickford thus alludes to his assistant's knowledge of the case:—'It was, I believe, on the 28th October when Mr. Jameson first mentioned Mary Johnson's case to me; and in giving a description of it he said that on his first examination he found laceration of the girl's perineum, and that her genitals had, in consequence of the laceration, an appearance exactly like the opening that is made in a pig's throat by a butcher when he kills it; consequently, Mary Johnson's case could not at the commencement be noma pudendi.' Now Mr. Jameson in his information swore, that when he *first* saw her, she had extensive ulceration from the labia and perineum up to the rectum. She was suffering from venereal disease; from syphilis; there was *ulceration from the mons veneris to the rectum!* Certainly the incisions made by our butchers in Ireland never exhibit any such appearances.

"There are two subjects suggested to me by the foregoing depositions, one of which must, no doubt, have struck your Lordship at the trial. It is, the state of demoralization of the people with whom the deceased lived, who put her and the prisoner to sleep in the same bed!—an act on which your Lordship, no doubt, animadverted at the time the case came before you. The other circumstance is that, no matter whether the symptoms were the result of violence, syphilis, or noma, the use of mercury was equally improper.

"In a case of this kind, when a man was to have been tried for his life for a very rare offence, a country surgeon and his assistant, no matter how valuable they might be as practitioners in their neighbourhood, are about as competent to decide as I, or any other surgeon or physician not specially instructed therein, would be to determine in a case of poisoning, requiring great medico-legal knowledge, and the subtle chemical analysis, requisite for such investigations.

"With respect to the defence of the prisoner, it was in reality no defence. I learn from the 'Times' that 'Mr. Cobbett, assigned by the Court, defended the prisoner.' If such assignment is similar to that practised in this country, I have reason to know it is often done at the moment of trial, when the junior barrister to whom the case is given knows nothing of the circumstances of it, has no brief, has not had time to look up the legal points which might be urged on the prisoner's behalf, or to consult medical authorities if such were requisite, but

simply endeavours, on the spur of the moment, to break down witnesses by adroit cross-examination, or addresses the Jury either on the improbabilities of the case, if there is room for doubt, or, if the case is clear, by an earnest appeal to their feelings. I would respectfully suggest that if a prisoner is to be defended at the expense of the country, he should be defended properly, or not at all. Had Amos Greenwood been wealthy, he would have had an attorney, and have been defended by counsel previously well prepared, who would probably have brought several of the foregoing circumstances before your Lordship and the Jury in a far more effective manner than I have been able to do; and he might have procured such medical evidence as would have laid before the Court a true statement as to the cause of Mary Johnson's disease and death. And I am fully convinced that, had you heard the evidence of any two or three of the eminent medical men whose opinions I have obtained in this case, and which opinions I herewith submit for your Lordship's perusal, you would have either directed the Jury to acquit the prisoner, or to give him the benefit of any doubt which might arise in their minds, respecting the true cause of her death.

"Few criminal lawyers are sufficiently versed in medical jurisprudence as to be able to take up a case upon either side of a question without previously 'making up;' and even then they are likely to be mistaken on the most trivial technicalities. Now, my Lord, in this trial for murder at Liverpool, no one in court seems to have been aware of the possibility of the disease having been mistaken by the medical men, of the likelihood of the child's having died from spontaneous disease, and of the common occurrence of children being, under such circumstances, induced to make false accusations. Moreover, independent of the difficulty which a lawyer has in defending such a case, so put to him, there is invariably a prejudice against the prisoner; from the nature of the offence, there is naturally a public outcry against its atrocity, and the female portion of the community are loud in their cries for vengeance.

"Besides the difficulties under which I labour in bringing this case before your Lordship, and to which I have alluded in the commencement of this letter, I also feel that medical evidence, however truthful, coming from the highest authority, and based either on the acknowledged principles of science or extended observation and experience, has not the same weight with a large proportion of the Bar as a statement made respecting an *alleged* fact by a non-medical witness. Among the many causes which have induced this scepticism, not the least

prominent is that of such instances as occurred in the case of the trial of Amos Greenwood. But the Bar and the public might as well cavil at the legal opinion of an attorney's clerk, if offered on a case of law, as at the evidence of a chemist and druggist, who had no opportunity of acquiring a knowledge of disease either by lectures, hospital attendance, or personal experience.

"I have now but to thank your Lordship for the courtesy and attention you have given to my communications, and to direct your attention to the answers of the queries I addressed on the case to some of my professional brethren, and who, with two exceptions (upon which I have commented in the proper place) are all in favour of the girl having died of disease arising without sexual intercourse. I should add that, although this case involves several medico-legal points, an experienced practical physician or surgeon is more likely to arrive at a correct conclusion than a mere medico-legal jurist. Your Lordship will therefore perceive, that the persons from whom I sought information are engaged in the practical branches of the profession.

"Should it turn out that this horrid crime, of which the accused has been found guilty, was not committed, I need not tell your Lordship that it will be a source of satisfaction to the surviving friends of the deceased. My chief desire is, that this case may not hereafter be created into a precedent; and even although I may not have succeeded in convincing your Lordship, I have the satisfaction of having done my duty to my profession. Should, however, your Lordship be now of opinion that a mistake may have been committed in this case, your high sense of justice will, I feel assured, lead you to permit me to take such steps as will tend to its rectification.

"With respect to the prisoner, I have, as your Lordship is aware, no interest in his present state; if he is a well-conducted man, it may be an improvement on his late condition,—that of a costermonger's assistant. My interference is not on *his* behalf, but in what I consider to be the cause of truth, justice, and medical science.

"The following is the list of queries sent, together with the statement, given at page 54, to the medical men, whose opinions are appended thereto. The original documents have been all carefully preserved, and can be forwarded to your Lordship, if necessary."

QUERIES.

"I. Is rupture of the perineum likely to have been produced after the mannner described; or have you known any cases of forced connexion in which it occurred?

"II. The fact of the ruptured perineum, in the forced connexion, was laid great stress upon by the Judge. Do you think the perineum could have been ruptured after the manner described, without the child resisting, and giving expression to her feelings in loud cries, sufficient to awaken the three other persons who slept in the same room with her?

"III. Would hemorrhage sufficient to mark the child's night-dress, and the sheets, follow a rupture of the perineum in forced connexion; and if such a sign was absent, what inference would you draw therefrom?

"IV. If the perineum was ruptured, and the vagina and neighbouring parts lacerated to the extent described five days afterwards, do you think she could have risen next morning, and proceeded to her work as usual, not making any complaint to her parents or mistress until her state was observed three days afterwards?

"V. Does syphilis ever in the female child assume the form described, on the fourth day after connexion?

"VI. Do you know any disease likely to arise spontaneously, which presents the appearances described in the foregoing statement, and which is likely to end fatally?

"VII. What amount of credence is to be attached to the evidence of children with respect to connexion, when the suspicious appearances are discovered several days after the supposed act?

"VIII. To what would you attribute the death of Mary Johnson?"

The answers to these questions have been arranged according to the order in which they were received: the Roman numerals correspond to those prefixed to the Queries.

From Alfred M'Clintock, M. D., F. R. C. S. I., Master of the Lying-in Hospital, Dublin:—

"I. I do *not* think it possible for the perineum to have been ruptured in the manner described; nor have I ever known or heard of a case where forced connexion produced this result.

"II. My answer to this query is already given.

"III. I think that forced connexion, sufficient to rupture the perineum, would, supposing the female to be in bed, cause a hemorrhagic stain on her dress, and on the sheets. The absence of any such stain upon her linen I would regard as disproving a forced penetration.

"IV. Quite impossible that she could have done so.

"V. I have never known syphilis, in any stage, produce appearances such as were found at this post-mortem examina-

tion; and I do not believe it possible that these appearances were due to the alleged causes.

" VI. Yes; a form of spontaneous gangrene, which spreads rapidly, and occasions extensive destruction of all the contiguous parts.

" VII. None; unless corroborated by direct circumstantial evidence.

" VIII. To noma pudendi, or gangrenous inflammation commencing in the genitals.

" 31*st December*, 1857."

From Fleetwood Churchill, M. D., M. R. I. A., Professor of Midwifery, and the Diseases of Women and Children in the King and Queen's College of Physicians in Ireland, author of a work on " The Diseases of Children:"—

" I. I have known no case of laceration of the perineum produced by forcible connexion, nor do I think such an effect at all likely.

" II. I do not think that the perineum could have been ruptured in the manner supposed, without the severest suffering; and it is not likely that a child of ten years old would have suppressed all expression of pain.

" III. I think rupture of the perineum, from forced connexion, would be *immediately* followed by considerable hemorrhage; the absence of which, to my mind, would be very strong evidence indeed that no such rupture took place.

" IV. If the extent of damage supposed had been inflicted, I do not believe it possible that she could have gone to work as usual without such pain as must inevitably have arrested observation.

" V. I never saw syphilis in females assume the form described in the Report; nor do I believe that the combined effects of rape and syphilis would produce that result.

" VI. You will find, in my 'Diseases of Women,' pp. 52, 53, the description of a disease from Dugès and Kinder Wood, which closely resembles the post-mortem description you have sent me. It is gangrenous ulceration of the genitals; and if I were to give an opinion, I should say that it was this disease of which the child died.

" VII. Little or no weight, unless the disclosure is voluntary, and made within a very short period. None at all, if the mother has catechised the child, for she is sure to put leading questions which indicate to the child what she is to say.

" VIII. As I have said, to gangrenous ulceration of the female genitals, extending into the pelvis.

"Let me add one remark. There is not only no evidence of *laceration* of the perineum, but negative evidence that it was not lacerated, for the first medical man who examined her *could not* have overlooked such fearful damage unless he were blind, or did not examine her at all.

"*December* 31*st*, 1857."

Upon the subject of syphilis alone I have received the following note from Thomas Byrne, F.R.C.S.I., Surgeon to the Lock Hospital, Dublin:—

"In reply to your note of yesterday, I have to assure you that I have never seen, in young or old, a fatal case of primary syphilis, attended with sloughing, ulceration, and mortification of the genitals; we have, however, from time to time, many cases in the Lock of sloughing primary sores, occurring generally in very young women."

From William Lawrence, F.R.S., Surgeon Extraordinary to the Queen; Surgeon to St. Bartholomew's Hospital; author of an essay on "A peculiar Affection of the Genitals in Female Children," &c. &c.:—

"I. I have neither known nor heard of any instance in which the perineum has been ruptured by forcible attempts at sexual intercourse with a female at any age.

"II. Assuming, what I hardly believe to be possible, that the perineum could be ruptured by an attempt at forcible connexion, there would be severe pain, and such outcries as *could not fail* to awaken and alarm persons sleeping in the same room.

"III. If the perineum could be ruptured in forced connexion, which I doubt, or if the parts should be lacerated in a similar attempt, I believe that sufficient bleeding would necessarily follow to mark the night-dress of the child, and to appear on the sheets. In the absence of such signs, I should infer that neither rupture nor laceration had taken place.

"IV. If the perineum had been ruptured, and the vagina and neighbouring parts lacerated to the extent mentioned as having been observed five days afterwards, she could not possibly have risen next morning and proceeded to her work without complaint, and still less have continued to do so for three days.

"V. Syphilis never assumes the form described on the fourth day after connexion, either in the child or the adult. The symptoms described are altogether unlike those of syphilis, which seldom shows itself earlier than from the seventh to the tenth day after infection, and then in a form little calculated to alarm.

"VI. Female children are liable to a peculiar inflammation of the genital organs, sometimes proceeding rapidly to foul ulceration, and even mortification. *In some instances death has been caused by this affection within a few days. I attribute the death of Mary Johnson to this disease.*

"VII. I believe that very little reliance can be placed on the evidence of young children, when, in addition to serious illness, they have been alarmed by accusations and threats, and teased by repeated questionings.

"1*st January*, 1858."

From Thomas Geoghegan, M. D., F. R. C. S. I., Professor of Medical Jurisprudence in the Royal College of Surgeons in Ireland; Surgeon to the City of Dublin Hospital:—

"I. Rupture of the perineum (in the anatomical sense of the word), as an attendant on defloration, is rare, although I am aware of cases both recorded and otherwise. Its occurrence would be, obviously, more likely, *cæteris paribus*, in the young than in the adult subject, although I have reason to believe that it is not confined to the former.

"As respects the case now submitted, I confess the medical evidence does not appear to me unequivocally to substantiate the fact of rupture of the perineum, or even of the hymen; for when the examination was made (on the sixth day), it appears that there was 'extensive ulceration of the labia, extending into the rectum' (and hence through the perineum?), a condition *likely* to render the verification of either form of rupture difficult or *impossible at the date assigned.* It seems further very improbable that a person described as labouring under venereal 'in its most virulent form,' should be physically capable of inflicting a degree of violence sufficient to lacerate the perineum. If, however, the accused had succeeded in doing so, laceration on the surface of the male organ might reasonably have been expected. This, however, is not noted among the appearances discovered[a].

"II. If the perineum or part of the recto-vaginal septum had been ruptured, as described, I should have expected that the assault would have been discovered by those in the same apartment, unless the cries of the sufferer were forcibly suppressed; or that the occurrence would have betrayed itself very soon

[a] Mr. Jameson, the only person who examined the prisoner, states that he had *venereal warts*, a condition rendering rupture of the perineum more difficult, and, taken in connexion with the foregoing opinion of Professor Geoghegan, almost impossible, without great pain, and perhaps hemorrhage from the penis.

afterwards, either by incapacity for motion, or at least by alteration of gait and manner.

"III. IV. & V. Certainly; even rupture of the hymen, unaccompanied by any injury of the perineum, is usually attended by hemorrhage, which, in one case that fell under my observation, was so copious as to demand surgical interference. Considering the disparity of the adult male organ to that of a girl of the age stated, the absence of blood on the clothes, presuming the garments not to have been interfered with, would, in my opinion, render forcible penetration most improbable, and rupture of the perineum, I think, impossible. The progress and termination of the local mischief were unlike those of defloration, whether the latter be accompanied or not by venereal infection. Under the circumstances, it is to the last degree unlikely that sphacelus would have been the result of defloration only; whilst its occurrence to the degree and in the form assigned, as the consequence of venereal infection, is witnessed in the female sex only in persons addicted to gross intemperance, of broken-down habit, and usually the subject of ulceration of some standing. The progress of the previous ulceration in Johnson's case was equally unlike that usually observed in venereal. On the fourth day after the reputed infection, it had made very considerable advances: at this period, usually, syphilitic virus has either not as yet manifested its local effects, or has made but trivial progress, unless the parts inoculated have been already the seat of some other form of ulceration.

"VI. There is a peculiar and long recognised disease which attacks the genitals of young females, apparently a form of pemphigus gangrenosus, commencing in unhealthy inflammation, and proceeding to ulceration and gangrene, and frequently compromising life. Whether the deceased girl was the subject of a criminal assault or otherwise, I am of opinion that the character of the local symptoms, and the progress and termination of the case, are in conformity with those of the disease above mentioned.

"VII. Speaking without reference to any special case, it is unquestionably matter of experience, that the urgent interference of relatives and friends has often led to statements given in evidence by children, totally irreconcilable with the medical facts.

"*4th January*, 1858."

From William Acton, F.R.C.S., author of a "Treatise on Venereal Affections, including certain Affections of the Uterus," &c., &c., London:—

"I have much pleasure in answering your queries, as I think we should all aid in solving these odd cases in young girls, and rescue the man, if we conscientiously can; for I believe *many have been transported or hanged on imperfect medical evidence.* The case you propose for my opinion is similar to a few I have seen, and I think we can come to a solution of the difficulty.

"I. In answer to the first query, I may confidently state that I never heard or saw, or think it possible, that the genital organ of a man could produce a rupture of the perineum in a girl.

"II. To the second query I answer—No; I think her cries would have raised the sleepers, had such violence been used.

"III. The third question I answer thus—I do not think a girl could have been so injured, and the next morning gone to her work.

"IV. and V. The fourth question, as well as the fifth, may be thus answered:—In the delicate, ill-fed, and badly lodged poor of London, we occasionally find phagedena arising, which is capable of committing the ravages described in the above case. This form of sloughing phagedena has attacked the wards of St. Bartholomew's Hospital last year, so severely that the authorities closed the rooms in which the beds were placed, death having destroyed, I think, three young women from extensive ulceration of the generative organs. This form usually attacks syphilitic cases, and the child in Liverpool may or may not have had the disease. The child is said, I find, to have been treated for syphilis. Was mercury given her? and, if so, did not this further complicate her malady, whatever that may have been. I gave the case of a child brought into St. Bartholomew's Hospital, at page 4 of the Introduction to my second edition, which bears upon this case: had such a case been given mercury, I think we might have seen death followed by all the consequences you detail to me.

"VI. In answer to the sixth query, I should remark that the credence given to children should not be great, nor to the statements of the 'immediate surroundings,' to use an expression Owen employs, unless corroborated by medical probabilities.

"VII. In reply to the seventh query, I say phagedena, or sloughing phagedena, may have produced all the sequelæ; but whether this was superadded on simple ulcers, or syphilis, warts, and purulent discharge, the evidence gave me no clue to decide.

"*4th January*, 1858."

From Alfred S. Taylor, M. D., Professor of Medical Jurisprudence and Chemistry in Guy's Hospital School of Medicine, London; author of "Medical Jurisprudence," &c.:—

"I. Rupture of the perineum may take place under these circumstances:—(Case by Dr. Cheevers, in a girl aged 6, but looking younger—Medical Jurisprudence for India, page 46. Case by Dr. Brady, in a child, aged eleven months, fatal in about twenty hours.—Medical Gazette, vol. xxvi., page 160.)

"II. I think the perineum might be ruptured without the child resisting. One would anticipate crying; but fear might repress this. The cries, if made, might or might not awaken persons sleeping in the same room: that would depend upon circumstances. I find no evidence of resistance or crying in the cases quoted[a].

"III. I certainly cannot comprehend how laceration of the perineum, &c., from violence, could occur without effusion of blood taking place sooner or later. If it could be proved that neither the *sheets* nor the *linen* worn on that night by the child was bloody, this would be a strong point against the laceration having been produced at that time in the manner suggested; and that antecedent and other causes might have been concerned in the production of the injuries. In my judgment, this would make a case more strongly in favour of the prisoner than any of the other matters which depend upon probability or speculation, and on which professional opinion might be easily divided.

"IV. I should certainly expect that a person whose genitals presented the appearance described on the fifth day would have complained of pain and uneasiness for four or five days before the date of examination, and would have had difficulty in going about her usual work.

"V. No; I have never heard of such a case. It would not account for the purulent discharge or the laceration—i. e. syphilis unaccompanied by gonorrhœa.

"VI. I know of no disease likely to arise spontaneously which would present the appearances described,—e. g. rupture or laceration of the perineum. Vaginitis may arise from spontaneous or mechanical causes: it may be followed by mortification and death. It is not likely to end fatally when depending on ordinary spontaneous causes[b].

"VII. This is a legal question. Children untutored are

[a] See remarks on these passages in the next page.

[b] Of the twelve cases recorded by Kinder Wood, all arising from "*spontaneous causes*," ten ended fatally.

considered by lawyers to make excellent witnesses to *facts*. There might be reasons which would induce a child to conceal an act of this kind perpetrated on her, especially if she were a consenting party, or made no resistance in the first instance. I do not see that this fact should alone be sufficient to impeach the veracity of the statement[a].

" VIII. Under all the circumstances, I am inclined to attribute death to inflammation from violence alone to the genital organs. I can perceive no adequate cause for the inflammation and death but this.

" 5*th January*, 1858."

The only two cases of ruptured perineum from rape, on record, are, I believe, those referred to by Dr. Taylor[b]. That afforded by Dr. Brady in the Medical Gazette is the instance of the child, eleven months old, to which I have already referred at p. 61; but it bears no analogy to the case of Mary Johnson. The Indian case I have not read the particulars of, and therefore cannot offer any analysis thereof. But Dr. Taylor does not enumerate ruptured perineum among the possible marks of violence described in the present edition of his Medical Jurisprudence[c]. The weight of medical evidence is also against his opinion. With respect to a child not resisting or crying from fear, it is questionable whether she would be able to restrain her feelings, even if influenced by that, or any other motives. In the case of the child eleven months old, what resistance could be offered; and who could hear its cries when, as stated in the Report, the man, with the child in his arms, ' walked on quickly, and was out of sight for half an hour.' I am at a loss to know what are the circumstances that would prevent persons in ordinary sleep hearing a child of ten years of age crying within one yard of them.

As regards the answer to the sixth query, I apprehend that physicians or surgeons who see much of the diseases of children

[a] In answer to this seventh query, Sir Astley Cooper's opinion, and all those writers who have followed in the same course of investigation, seems to have been overlooked. And Dr. Taylor writes thus, upon this subject, in the last edition of his work on Medical Jurisprudence, that of 1858:—"The statement of the child may be simple and artlessly made: at this tender age a girl may be easily induced, by fear of punishment and the aid of leading questions, to admit that some one had committed an assault upon her; the statement, once made, may be persevered in, and *its inconsistency may not be always brought out by cross-examination*."

[b] Since writing the foregoing, a case occurred in London in which a child, aged 5, was violated by a boy some years older: the perineum was *partially* lacerated; but she screamed violently, and bled profusely.

[c] That of 1854, the last published when this communication was sent to Sir W. Wightman.

will not agree with Dr. Taylor on the pathology of these affections; and it is totally at variance with Kinder Wood's description of the disease which, although depending on ordinary "spontaneous causes," proved fatal in ten cases out of twelve.

From Thomas Beatty, M. D., F.R.C.S.I., lately Professor of Midwifery, and formerly of Medical Jurisprudence, in the Royal College of Surgeons in Ireland; and author of the article "Rape" in the Cyclopædia of Practical Medicine:—

"I. I think it is possible, but not probable; I never knew a case of it: I recollect a case in which the prisoner split the perineum of a child with a knife.

"II. The violence to effect the supposed rupture must have been so great as to *compel* screaming in the child, sufficient to rouse all in the room.

"III. If the perineum was ruptured in forced connexion, *there must have been* a considerable hemorrhage, and all the clothes of the child and the sheets must have been stained with blood. If such an appearance was not present at the time a rape with such violence was said to have taken place, I would disbelieve the assertion that the crime had been committed.

"IV. I do not believe she could.

"V. I know no form of syphilis that could produce these effects, even if combined with the violence of rape.

"VI. There is a disease well known, and long ago described by Dr. Kinder Wood, which presents all the characters of the disease found in the girl Mary Johnson, and which almost always ends fatally. I have seen it myself, and I have no doubt that the case of this girl was of a similar nature.

"VII. None whatever.

"VIII. To the gangrenous disease above alluded to, totally irrespective of violence.

"11*th January*, 1858."

From J. Y. Simpson, M. D., Professor of Midwifery in the University of Edinburgh:—

"I have read over your statement very carefully, and *I have no doubt whatever in my own mind that Amos Greenwood has been quite erroneously convicted.* The child evidently died of the *non*-venereal affection,—noma or phagedena of the vulva. I am not aware of any modern physician or surgeon having seen, or pretended to see, any variety whatever of venereal disease prove fatal in thirteen days, whilst that is the common end, and about the common course, of pudendal noma, when it occurs spontaneously in childhood. Besides, it

is highly improbable that the perineum, &c., could have been so seriously torn and lacerated, as is alleged, in any attempted connexion, without the girl crying out, and without her showing marks of injury in her gait.

" I believe it is very improbable that the laceration of the perineum could be caused by the forcible introduction of the penis into the vagina; but if such was the case, as alleged, I consider that it could not have taken place under the circumstances you describe without causing such exclamations of pain as would rouse the other inmates of the room from their sleep. I believe that the cause of the child's death was noma, or sloughing phagedena of the parts.

" 12*th January*, 1858."

From Sir Benjamin Brodie, Bart., Sergeant Surgeon to the Queen; formerly Surgeon to St. George's Hospital, London:—

" I have carefully read the Report of the trial of Amos Greenwood, as communicated to me by Mr. Wilde. Unless there were really positive signs of the little girl's perineum having been lacerated *by mechanical violence*, I should doubt such an injury having taken place. There is nothing in the symptoms, as I have seen them described, which may not be accounted for as the result of disease; and indeed it seems highly improbable that such violence should have been used as would have lacerated the perineum, without the girl having been heard to scream, and the linen having been stained with blood.

" At the same time, considering—1st, that Greenwood slept in the same bed with the girl; 2ndly, that he had warts and sores on his genital organs; 3rdly, that the girl was affected with symptoms which are not often of spontaneous origin, and which might have been the result of infection, I must say that it seems to me that there is great reason to believe that the charge against the prisoner, so far as his having made attempts to have sexual intercourse with the girl, was not without foundation.

" Further than this, I cannot venture to give an opinion without having before me the details of the evidence offered on the occasion of the trial, including, of course, the examination and cross-examination of the witnesses.

" 20*th January*, 1858."

From John H. Power, M.D., Surgeon to Jervis-street Hospital, and Professor of Practical Anatomy in the Royal College of Surgeons in Ireland:—

" I. I believe that rupture of the perineum is not likely to

occur in the manner described, and to the extent stated, in a child ten years of age. I have never known of the occurrence of such a case. I have had on many occasions the means of ascertaining the size of the orifice of the vagina in very young subjects and infants, and have found it much larger than is generally supposed,—e. g., in a subject three years of age, which died from a burn on the chest, I found the orifice measured, in the vertical diameter, one inch and a quarter fully when dilated; and transversely about one-eighth inch less.

"II. Extensive and forced laceration, such as described, could not, in my opinion, have taken place without resistance on the part of the sufferer, nor without such expressions of pain as would awaken some one or more of these who might have slept in the same room with her.

"III. Were such a rupture or laceration of the external parts, as that described to me, to have taken place from forced connexion, there must have been hemorrhage. If in this case there was no hemorrhage, I think it is quite clear that the child could not have sustained the violence spoken of, but must have died of disease.

"IV. I think it utterly impossible that any child who had sustained an extensive laceration of the perineum, and concomitant injuries of the external organs, could have arisen and gone about her ordinary avocations on the morning following, without enduring the most intense suffering, and manifesting the same to those closely associated with her. I believe a constitutional shock following so severe an injury must have been quite manifest.

"V. From my experience of syphilis in the female, I am not able to afford the necessary information in reply to this question.

"VI. I do know of a disease in this country which frequently presents the appearances described to me, and which frequently terminates fatally. In the Dublin Medical Essays for the year 1807 there is a paper written by the late Dr. Whitley Stokes, on this very disease, and which I find headed thus:—'On an Eruptive Disease of Children;' and in the table of contents and heading:—'Dr. Stokes on *Pemphigus Gangrenosus;*' Dr. Stokes gave the latter name to the disease. He describes it as attacking the genitals, as well as other parts of the body. (See his paper.)

"VII. I have heard of many instances in which children, under circumstances such as those described to me, have made statements, certainly not spontaneously, but under the direction of designing parties; I am, therefore, disposed in such

cases to receive these statements, made several days after the supposed act, with extreme caution.

"VIII. Under all the circumstances of the case of Mary Johnson, as described to me, I think her death resulted, in all human probability, from the disease called by Dr. Whitley Stokes, 'pemphigus gangrenosus.'

"*24th January*, 1858."

From W. B. Kesteven, F. R. C. S., London; author of an Essay on Vaginitis, in the Medical Gazette for July, 1851:—

"I. I have not known a case of forced connexion in which rupture of the perineum has occurred. I can scarcely conceive it possible that such injury should have been inflicted under the circumstances described; for, looking to the excessive distention which the perineum may suffer during labour without giving way, I cannot believe that a sufficiently persistent and rigid erection of the penis could be maintained long enough for the commission of such injury, in spite of the resistance of a child of ten years of age. The medical evidence, moreover, does not appear consistent or intelligible to me. The medical witnesses depose to having found, five days after the alleged forced connexion, that the perineum was lacerated, the hymen ruptured, the genitals lacerated, the labia ulcerated, and ulceration extending *into* the rectum. This statement requires explanation on the following points:—

"If there were *laceration* of all the parts described, coexistent with *ulceration* of the adjacent parts, on the fifth day after the receipt of alleged violence, in what state were the lacerated edges? Were they ulcerated or not? If not themselves ulcerated at that distance of time, what was their relation to the ulcerated surfaces? What is to be understood by 'laceration of the genitals,' as distinguished from lacerations otherwise denoted? What was the depth and character of the ulcerations in question? In the absence of explanation, I cannot distinguish the laceration from the ulceration.

"II. I think it physically and morally impossible that a child should have received such extensive injury by forced connexion, without having uttered such loud shrieks as *must* have roused the soundest sleepers in the same, or even in adjacent apartments. Had even the child been a consenting party, as it is possible from the terms on which the family seem to have lived, I do not believe that she could have submitted to such violence in silence. We know full well that women in general, albeit they may be consenting parties, having every motive of delicacy or fear to insure their silence,

can seldom forbear, during the first act of coition, from uttering cries, so intense is the pain they commonly suffer from simple rupture of the hymen. It is not credible, then, that a child of ten years of age could have submitted in silent endurance to mischief so incomparably more extensive and serious.

"III. No degree of laceration of the perineum, be it ever so slight, could occur without some hemorrhage; such extensive lesions as are described in this case must necessarily have been attended with a loss of blood that must have soaked the night-clothes and sheet. I have seen the hemorrhage following on very slight laceration of the perineum in childbirth so considerable as to require special surgical treatment. From the absence of this sign I infer that the perineum *was not* lacerated by sexual connexion, *forced* or *allowed*.

"IV. I do not believe it possible.

"V. Yes; I have seen a case of the kind. A girl, about thirteen or fourteen years of age, was attacked with sloughing phagedena two or three days after a single primary coitus. The disease rapidly manifested the virulent characters, extending to the thighs, nates, &c., and the girl narrowly escaped with her life.

"The post-mortem appearances in this case are perfectly in accordance with what I saw in the above; and what I have seen in others cases of sloughing phagedena.

"VI. None whatever. Such delay afforded the strongest presumption that the child was a consenting party to the act. The social condition of people living together in the manner of these persons must have rendered the child the subject of the grossest desires, and must have been most unfavourable to the development of a regard for truthfulness.

"Experience shows that a charge of this kind brought several days after the alleged crime must be received as *prima facie* evidence of its falsity.

"VII. I do not.

"VIII. I attribute the death of Mary Johnson to sloughing phagedena, following an allowed sexual intercourse with some man affected with syphilis. Such may have been the case of the prisoner, as he is stated to have had syphilis. I see no evidence whatever to bear out the opinion that the lesions in question were the result of forced connexion.

"26*th January*, 1858."

Comment on the foregoing evidence is unnecessary; as the chief point made in the first part thereof is against the

possibility of connexion with the child, after the manner stated in court, without *screams* and *hemorrhage* as the consequence thereof. With respect to the question of its being an "allowed connexion" (a crime of equal guilt in the sight of the law, when committed upon a girl of this tender age), it is against the evidence and the whole tenor of the case; furthermore, if, as stated by the judge, the perineum was ruptured, &c., it is scarcely possible to have been an "*allowed*" connexion.

My letter, with the accompanying opinions, was returned to me by Mr. Justice Wightman, with a polite note, stating that he did not propose making any further remarks beyond those already conveyed to Mr. Lawrence and myself.

With respect to the prisoner's condition, I have not been able to get any very accurate information, and, as I already stated, I was informed that the medical man who examined him had no legal qualification. About this time Mr. Lawrence wrote to me thus:—"There are very few practitioners in either of the two capitals, or out of them, possessing the knowledge of syphilis and of the diseases of female children necessary to a just appreciation of such cases as that of Amos Greenwood. There can be no doubt that the practitioners examined on the trial gave opinions altogether erroneous. *I am satisfied that this unfortunate child did not die from gonorrhœa or syphilis.* These affections are very imperfectly understood by the general run of medical men, whose evidence usually ends in exposing themselves and misleading the courts. What can be understood in the present case from the statement that the prisoner was found to be labouring under the venereal disease in an advanced stage?"—or, let me add, as the Judge asserted, "in a very high degree."

In a letter of his Lordship to me, dated 23rd December, 1857, he says "the symptoms of the venereal disease were said to be very similar to those of leucorrhœa;" and that Mr. Jameson, the chief authority in this case, stated in his depositions, that when he examined the prisoner Greenwood, he found warts *outside* the prepuce, and several sores upon the glands; which syphilitic ulcerations were (he swore) of "*the same description as those first manifested by Mary Johnson*," although he did not see her until the fifth day, and when, according to his own account, "there was ulceration from the mons veneris to the rectum," and all the parts in a state of "laceration" and slough. How few qualified practitioners, even though long engaged in the treatment of venereal diseases, will venture to swear to the similarity of an ulcer on a male with that exhibited on a female! Yet such an opinion must have had its weight

with both Judge and Jury. And of what use would a cross-examination of Mr. Jameson, or any other practitioner giving such evidence, have been? Why, in order to make the hearers appreciate it, they should all have walked the hospitals. What had the Jury to do with scientific quibbles of this nature? The *fact* was sworn to, as to the identity of the sores; that surely was sufficient!

Anxious to learn something of the prisoner's state, as well as to have some questions arising out of the evidence cleared up, I wrote to the medical man of the prison in which he was confined, who, in reply, informed me that "he had the remains of an indurated sore (syphilitic) at the junction of the glands with the reflected lining of the prepuce;" but that it was contrary to the prison rules to ask any questions respecting the past.

In March last I forwarded the letter which I had written to Mr. Justice Wightman to the Right Honorable Spencer Walpole, Home Secretary of State, together with a memorial, as the prayer of which I respectfully requested a further inquiry into the circumstances of the case, on the following grounds:—

"1. That the forced connexion, producing, as stated at the trial, and upon which the Judge laid so much stress, laceration of the perineum, or septum between the anus and vagina, could not have taken place, even in allowed connexion, without the girl screaming, and attracting the attention of her master and mistress, whose bed was within *one yard* of the place where prisoner and deceased slept.

"2. That if such violence as was asserted by the medical men took place, it would have been utterly impossible for the girl to have risen the next morning and proceeded about her ordinary work, without making some complaint, or attracting the attention of her friends.

"3. That no sign of hemorrhage was observed on the sheets the morning after the alleged connexion, nor on the child's dress at any time.

"4. That the child made no accusation against any one until she was threatened to be 'allowed to die' of the disease which had broken out upon her, if she did not confess.

"5. That in such cases it has been well established by Sir Astley Cooper and other writers that children are not worthy of credit.

"6. That, of the two medical men who attended the deceased shortly before her death, and made the post-mortem examination afterwards, one was an unqualified practitioner, incapable of forming a correct opinion upon such a subject; and that the other acknowledged in a letter (an extract from which was

forwarded to the Judge), that he had neither read nor heard of the disease of which I and others believe the child died, although such disease has been described in books accessible to every medical man; and that, not being acquainted with the disease or the cases referred to where similar accusations were made, he was (no matter what his other qualifications may be) an incompetent witness on that trial.

"7. That an examination of the child by Mr. Winnard, a surgeon at Wigan, upon the fourth day after the alleged connexion, failed to discover that frightful laceration from which it is asserted the child suffered at the time, but found only the early symptoms of a malady consisting of ulceration and discharge, which I and others assert subsequently passed on into mortification, producing death.

"8. That all the symptoms detailed at the trial are against the supposition of *rape* and *syphilis*, and accurately correspond with those known as *noma pudendi*.

"9. That the case was of an entirely medico-legal character, and that there was deficient and conflicting evidence as to its nature."

On the 13th of April, 1858, I am informed, in reply, that Mr. Secretary Walpole "can see no sufficient reason for doubting the propriety of the verdict, especially in the absence of any assertion of innocence on the part of the prisoner himself, or of his friends." Whether this wretched, illiterate, costermonger's assistant may *have* any friends, or, if he have, whether they are imbued with a belief of his innocence, and able and willing, in the absence of a cheap criminal court of appeal, or a Minister of Justice, to bring the matter under the notice of one of her Majesty's Ministers, is really more than I care to inquire about; and as to *his* assertion of innocence, according to the prison rules, neither the Governor, the Chaplain, nor the Medical Attendant, are allowed to make any inquiries respecting a man's innocence or guilt. I therefore again appealed to Whitehall, and in respectful terms requested an order to the medical officer of the prison to make certain inquiries of the man, subject to the usual supervision. In reply, I was politely informed that no such order would be given; and so far my efforts, not to free the convict, but to straighten what I considered to be a deviation from the course of justice, chiefly owing to mistaken medical opinion, ended.

Personally I have no interest whatever in the case; and it is a pleasure to me to find that the Judge, in one of his last and always courteous communications, stated that he was "fully satisfied that my object in communicating with him was to assist

in the furtherance of justice." A part of that endeavour was to prevent this trial at Liverpool being constituted into a precedent in medico-legal writings, as stated at page 69 of my Letter. And it was not without reason, should I have been arguing upon the right side of the question, that I conceived that intention; for, while so endeavouring, my friend Dr. Taylor, chiefly from the information received through me, has given the case in the recently published edition of his great work on Medical Jurisprudence. At page 698 he says:—"On the fourth day she (the child) was examined by a medical man, and then she stated that the prisoner had had connexion with her." Now, Mr. Winnard, the practitioner alluded to, states the direct contrary (see his evidence, page 63); and while these pages are passing through the press, he has again written to me to say:—"No charge was made against any one when the girl was brought to me, and no suspicion stated either." Dr. Taylor does not say (possibly did not know) that the accusation was forced from the child by a promise and a threat. Again, he states:—"It appears from the testimony of two medical men, who examined deceased on the fourth or fifth day, that the perineum was ruptured," &c. For that statement read—when examined on the fourth day, Mr. Winnard *saw no laceration of the perineum;* but upon the fifth day Mr. Jameson, said to be a surgeon's assistant, *stated* that the perineum was ruptured. The same gentleman said it was gonorrhœa or venereal the child laboured under, and swore to the sores on the penis of the man being similar to those on the lacerated vagina of the child. Again, at page 699 we read:—"When medically examined on the fourth day, it was found that she was affected with syphilitic disease." On the contrary, when examined by Mr. Winnard, on the fourth day, he saw nothing but *vaginitis;* and Mr. Lawrence and others state, from the same data as that presented to Dr. Taylor, that she presented *no symptoms of syphilis.* It is, therefore, scarcely fair to again assert, a little farther down on the same page, that "it was also proved that she was affected with syphilis."

"That there was intercourse," says Dr. Taylor, "appears clear from the statement of the girl and the medical evidence." Let any one read the foregoing, and say that such is clear. Dr. Taylor's work is deservedly one of the highest authority in the English language, quoted and acted upon in every court of justice in the land, and it is, therefore, of the greatest importance that every statement in it, upon which either legal or medical opinions are to be founded, should be perfectly correct. Dr. Taylor does not discuss the ques-

tion as to the possibility of the child having died of noma pudendi; neither does he, in this edition of his work, describe that disease as one with which the medical jurist should be well acquainted; nor does he quote from, nor even specify, the cases given in the Medico-Chirurgical Transactions.

From the foregoing statement may be learned the following pressing requirements:—

The necessity for professional coroners, acquainted with medical jurisprudence.

The necessity for medical registration (just now become law), by which unlicensed and posssibly uneducated practitioners are not admissible as professional witnesses.

The necessity for a Criminal Court of Appeal.

Art. III.—*Case of Vesico-Vaginal Fistula, in which a Second Operation was successfully performed.* By Henley Thorp, M. D., F. R. C. S. I., Letterkenny.

It is not my intention to occupy the pages of the "Dublin Quarterly Journal" with a lengthened dissertation on Vesico-Vaginal Fistula, or to make the circumstance of one fortunate operation a pretext for trespassing upon the time and patience of its readers with matter, I presume, now familiar to all surgeons, whether in town or country. The subject has been very recently brought under review in an able and practical paper from the pen of Dr. M. H. Collis[a]; in which will be found a detailed account of the first operation performed by me on the patient who is the subject of the present communication. The history of the case is briefly as follows:—

Mrs. H., aged 33, a short, stout-built woman, with well-formed pelvis, was delivered of her second child in March, 1856. Labour was concluded in eighteen hours, without the use of instruments. After delivery, she suffered from some pain and difficulty in making water, which in a few days amounted to complete retention. For some time the catheter was had recourse to, when the retention ended in incontinence, and she became totally unable to retain her urine, which dribbled away continually, excoriating the labia, inside of thighs, &c. I was requested to visit this patient in the middle of April,—one month after delivery. On examination, I found the vagina hot, painful, and excoriated. Just beyond its en-

[a] See the Number of this Journal for February, 1857.

trance lay a soft substance, like a slough, which I immediately removed. This, when floated in water, proved to be part of the fœtal membranes,—fetid, rough, and infiltrated with particles of calcareous matter deposited from the urine. The vesico-vaginal septum, just behind the neck of the bladder, presented an opening of an oval form, through which a catheter, introduced from the urethra, entered the vagina. This opening freely admitted the index finger into the bladder, and might measure about an inch from before backwards, and three-quarters of an inch from side to side. Its margins were rather soft and granular, and thicker behind than in front.

My first operation on this patient was performed on the 30th May, 1856. It was unsuccessful; and I attribute the failure mainly to two causes:—1st. The material forming the "quills" by which the flaps were approximated was incompressible and hard. 2nd. The ligatures were tied too tightly. On the third day after the operation the urine escaped, partly through the catheter and partly into the vagina, between the sutures; and the central portion of the flaps presented a grayish sloughy appearance. On the fourth day scarcely any urine passed through the catheter: it entered the vagina as before the operation, *via* the fistula; and the sutures, &c., were accordingly removed. On the eighth day the following note was taken:—"I instituted this day a particular examination. The opening appears narrowed to one-half its former dimensions: it is still rather oval; but its long axis now lies from side to side, and not from before backwards, as previous to the operation." In the beginning of the following August the actual cautery was applied to the edges of the opening, and the iron was subsequently employed on three other occasions, with the effect of slightly narrowing the fistula, which, nevertheless, still permitted the entire of the urine to escape into the vagina.

I lost sight of the patient till July, 1857, when she called to inform me that she was again pregnant. In December following she was delivered of a full-grown male child. The labour was natural, and her convalescence rapid.

My second operation was successfully performed on the 23rd July last; I was assisted by my friends, Drs. Johnston, Eames, Smith, and Cannon. The patient was placed, as on the former occasion, on her back, in the lithotomy posture. The fistula was brought into view by means of Churchill's midwifery forceps; the blades being extemporized into lateral dilators; whilst the handle of a table-spoon was found a most convenient instrument for raising up the neck of the bladder in front of the opening. Posteriorly a piece of bent block-

tin, about an inch wide, served to dilate the vagina in that direction. The perforation, which freely admitted the index finger into the bladder, was circular, and nearly an inch in diameter; its margin, thin and even, presented a pale, polished appearance inferiorly; whilst its upper aspect was bordered by a fungous vascular fringe of vesical mucous membrane. The changes in the pelvic organs incident on pregnancy and parturition would seem to have obliterated the effects of antecedent proceedings, and to have dilated the fistula to its original dimensions. Although a catheter was introduced through the urethra into the bladder by way of precaution, the upper wall of the organ did not impede the operation by falling down, as it sometimes does, and projecting at the opening into the vagina. The operation was similar to that previously performed, with certain precautions, to be noticed hereafter. It was that originally devised by Dr. Hayward, of Boston, and first introduced into this country by Dr. M. H. Collis, of the Meath Hospital. Its principle is to obtain extensive raw surfaces for immediate union, by separating the vagina from the base of the bladder to the extent of half an inch, or thereabouts, around the fistulous perforation; or, in other words, splitting the vesico-vaginal septum in the vicinity of the fistula into two laminæ, and so adjusting the fresh-cut surfaces of the respective flaps that, when turned upon themselves, and retained in contact by quilled suture, they shall adhere and unite by the first intention. Accordingly, the edge of the opening being seized with the long-toothed forceps, a disk-like flap of membrane was dissected down from the base of the bladder, the centre of which necessarily corresponded to the abnormal opening, whilst its circumference, composed of healthy structure, was limited by the angle of union of the two layers continuous in the septum, or rather by the boundary line of circular form where their separation terminated, nearly half an inch outside the fistula. The incision was commenced about two lines externally of the latter. This was necessitated by the thinness of its edge and by the alteration of structure which had taken place in its vicinity. Here the textures were firm, tough, and difficult to cut; more externally, however, the scalpel traversed them with tolerable facility, so as to effect the necessary division. A diseased portion of the border of the fistula being excised, three double ligatures of silken thread were passed, with a long-handled curved needle, at points equidistant, and corresponding anteriorly and posteriorly, through the vaginal mucous membrane, *a short distance outside the extreme circumference of the flaps*, and the angle where the splitting of the septum into the

two layers terminated. A piece of bougie, No. 8, about an inch and a half long, and encased in a hollow cylinder of vulcanized India-rubber, was now conducted through the posterior or looped ends of the ligatures lying behind the fistula; and their free anterior extremities, in front of the latter, were next tied over another portion of bougie, similarly prepared, and of the same length and thickness. The two elastic bars, when drawn together, were seen to lie parallel, and to include between them the free or inner border of the lower flap, which, compressed from before backwards, projected downwards in the form of two transverse lips, continuous at their lateral commissures.

To provide for the free and uninterrupted discharge of urine from the bladder, the largest-sized gum-elastic catheter, cut to the required length, and furnished with a metallic head, was introduced through the urethra, and maintained *in situ* by ligatures passed at either side through the substance of the nymphæ. This expedient I was obliged to resort to (having failed in obtaining Marion Sym's self-retaining catheter), being convinced of the inefficiency of the ordinary apparatus of belts, tapes, &c., usually employed for the purpose of keeping the instrument in its position. The operation was unusually prolonged, in consequence of the restlessness of the patient, and the constant oozing of blood, which obscured the parts. She was placed on her knees in bed, and thirty drops of laudanum immediately exhibited. As a precautionary measure, her bowels had been previously acted upon.

July 24th. Patient has remained upon her knees all night; had no sleep; urine drops freely from the catheter. To have a grain of opium every three hours.

25th. The patient has not changed her position since the operation. She has had no sleep, and feels greatly fatigued; takes the grain of opium regularly every three hours. Catheter continues to conduct the urine freely. She was permitted to lie upon her side.

26th. Catheter removed, cleaned, and re-introduced. The patient maintained the lateral position since yesterday. Urine drops freely from the instrument. Continue the opium pills.

27th. This day I cautiously introduced a bivalve speculum; cut the ligatures, and removed them and the portions of bougie, &c., which constituted the suture. The union appears complete. The vagina was syringed with warm water. The catheter was not disturbed. Omit the opium pills.

28th. The catheter was cleared by the introduction of a silver probe along its canal, but retained *in situ*.

29th. The catheter partially escaped from the urethra

during the night, in consequence of one of the ligatures having ulcerated its way through the nympha. This produced so much pain and annoyance that the nurse in attendance removed the instrument altogether. The patient has since made water in small quantity on two occasions through the natural passage, and she is certain that no urine passes into the vagina. I introduced a speculum to ascertain particularly the condition of the parts. The site of the fistula presents the appearance of two nearly transverse ridges, of which the anterior is the thickest, separated by a narrow granulating surface A solution of chloride of lime to be injected twice daily.

30th. Patient is walking about ; makes water frequently, and in small quantity, through the urethra. Bowels not moved since the operation. To have a draught of castor-oil.

August 4th. I made another examination with the speculum. The projecting ridges formerly described are now flattened down, and the red granulating surface lying between them is wider and more oval in form. The castor-oil operated freely, but the vesical irritability and frequent micturition continue. To have infusion of buchu, with sedative liquor of opium, three times daily ; camphor and extract of belladonna, in the form of pills, at night.

August 10th. This afternoon I examined the patient, in company with Dr. Johnston, of Ramelton. The union is perfect.

The only annoyance from which the patient now suffers is frequent micturition. She is obliged to make water eight or ten times during the twenty-four hours. The urine is normal.

Beyond the plain recital of the foregoing case, I have few observations to add of a novel description. To one point, indeed, of cardinal importance in the performance of the operation, I would direct particular attention. It appears to me that the lower or vaginal flap has been hitherto made the too especial object of surgical adjustment. Through it exclusively the ligatures are directed to be passed, and consequently upon it only the quilled suture, or other appliance of coaptation, can *directly* operate. But the complete and even contact of the upper or vesical layer of membrane is of equal or greater importance ; and this can be obtained by the plan adopted in my second operation. The needle should penetrate the vesico-vaginal septum, so as to enter about two lines in front, and, crossing the area of the fistulous perforation, emerge at the same distance behind the line of division of the membrane into

two flaps, and should in its course precisely hit off this angle anteriorly and posteriorly, so that the ligatures, when tied, shall cause the "quills" to press together the cut surfaces, at their farthest point from the abnormal opening—that is to say, at the divisional line already spoken of; thus the recent surfaces of both layers will be equally compressed, and placed precisely in the same condition for adhesive or immediate union. It is clear, if the ligatures be merely passed through the lower flaps, that the suture can only approximate the upper flaps *indirectly* and imperfectly; the vivified parts are consequently but partially coapted, and the angle alluded to is left open towards the bladder as a channel for the reception and lodgment of urine, the irritating properties of which must seriously interfere with the process of repair essential to the success of the operation; whereas, if the plan of passing the needle just described be followed, this angle, corresponding necessarily with the line of extreme pressure, will be completely closed, and urinary infiltration effectually prevented. I deem it also a matter of no small consequence that the portion of bougie, India-rubber cord, or whatever substance is employed for "quills," be possessed of adequate thickness, as well as elasticity. As the surfaces compressed will be proportionate to the bulk of the "quills," the advantage of having the latter full-sized becomes obvious. I employed a piece of No. 8 bougie, and over this was drawn a hollow cylinder of India-rubber, which increased its diameter to that of the largest-sized gum-elastic catheter. In this manner was obtained a body of ample bulk, with an axis sufficiently firm to afford the necessary support, and a surface possessing softness and compressibility adequate to prevent the ligatures exerting an undue amount of pressure. Thus strangulation from tumefaction of the flaps was prevented, and their coaptation secured.

The sutures were removed on the fourth, but the catheter was retained in the bladder till the sixth day after the operation. This was done with the view of placing the organ in a condition of perfect rest, as its distention or even frequent action might have severed the recently formed adhesions. The precaution, particularly in cases where the sutures are removed so early as in the case just recorded, should not be lost sight of.

The tying of the ligatures is a matter of great delicacy; nevertheless, if the method of passing the needle, so as to take an extensive hold of the soft parts, which I have suggested, be adopted, and if bulky, elastic "quills" are employed in place of small-sized ones of rigid material, I suspect that sloughing of

the included textures will seldom occur. Over-pressure, however, must be carefully avoided, and allowance made for tumefaction.

I believe that the operation may be facilitated and its success enhanced by the employment of silver wire ligatures, clamped with split grains of shot, instead of knotted in the ordinary manner over the "quill" in connexion with the anterior flap. The passing and adjustment of the other "quill," or that lying behind the fistula, can be easily accomplished by reason of the metallic loops preserving their form, and to compress each shot-grain when pushed home into its position will be found preferable to the tedious and more difficult proceeding of tying the ligatures.

In old cases of vesico-vaginal fistula the capacity of the bladder, from want of distention, becomes greatly diminished. To this condition I attribute the inability of the patient to retain her urine for the ordinary period, after the closing of the fistula. The same cause may explain why the upper wall of the organ offered no impediment to the performance of the operation. Again, we can perceive in this imperfection of the bladder, from disuse, a valid argument against delay, and a strong incentive to prompt interference in suitable cases.

The margin of the fistula, as also the neighbouring parts, in long neglected examples of this miserable malady, is often found puckered, indurated, and otherwise altered in anatomical structure. I should have no hesitation in such cases to excise more or less of the morbid textures preparatory to the division of the septum into flaps. The proceeding, doubtless, would enlarge the perforation ; but as healthy surfaces are essential to union by immediate contact, the chances of success would certainly not be lessened. Excessive tension could be obviated by incisions parallel to the sutures, similar to those practised laterally in the operation for cleft palate.

I have not alluded to the employment of the silver shield recommended by Mr. Bozeman as a mechanism of coaptation. It has no advantage, in my opinion, over the "Quilled Suture," when properly constructed and applied *secundum artem*. The latter, moreover, is far simpler, and, I should say, easier of adjustment.

Art. IV.—*Diphtheria.* By J. H. Houghton, Surgeon to the Dispensary, Dudley.

The slightest glance at the periodicals must convince every one that Diphtheria is becoming more and more prevalent; that it is the cause of great mortality; and that the treatment of it is generally undetermined, uncertain, and unsatisfactory, if not nugatory. Any attempt, therefore, to assist in establishing a treatment, which on very extensive experience has proved perfectly effective, will not fail to be acceptable to the profession.

In 1856, diphtheria first broke out in Birmingham, where it caused great consternation, and baffled the efforts of the medical men. My friend Dr. Heslop, Physician to the Queen's Hospital, and Professor of Medicine at Queen's College, having been called upon to treat a number of these cases, soon became convinced of the futility of all the modes of treatment then in vogue, and by an induction derived from a consideration of the nature of the disease, and of its alliance with erysipelas, came to the conclusion that probably in the old muriated tincture of iron we might have a remedy competent to meet the difficulty in which we were confessedly placed. "Reflecting," says Dr. Heslop, "upon the striking alliance of this pestilence with erysipelas; its characteristic tendency to early and profound adynamia; the frequency of severe and often fatal hemorrhages; and above all, upon the utterly futile nature of the measures generally employed for its relief, whether derived from traditional medicine or from more modern sources,—I felt more and more convinced of the probability of benefit accruing from the administration of this most powerful drug." "Further reflection upon the nature of the local treatment most in favour in this country, and apparently almost exclusively in vogue amongst the French physicians, led me to the opinion that strong solutions of the mineral acids, and pre-eminently the hydrochloric acid, would be found infinitely more serviceable than the all-popular solution of nitrate of silver. Valuable as this latter agent unquestionably is in the treatment of ordinary sore throat, erysipelatous sore throat, angina variolosa, scarlatinal angina, and numerous other modifications of this common malady, it has appeared to me to be worse than useless in many cases of angina membranosa or diphtheria." "The hydrochloric acid acts at once as a solvent of the exudation, and as a most penetrative alterative upon the morbid structures." Farther on Dr. Heslop continues:—"Opportunities soon occurred to me of putting my views into practice. The results of my trials surpassed my expectations; I had no longer to tell my pupils of the futility

of all efforts to cope with the newly resuscitated pest, when it assumed a really severe aspect. I no longer entered the consultation room with the sentiment that the conference would only end in a display of the weakness of the medical art."

A paper by Dr. Heslop (from which the above extracts are taken), containing an account of his views of the pathology and treatment of diphtheria, was published in the Medical Times and Gazette for May 29, 1858; and it had been arranged that my cases were to follow as illustrative of the views therein set forth, but circumstances then prevented our plan being carried out. Further experience has confirmed Dr. Heslop in the views he then promulgated. The disease is confessedly spreading; the treatment inoperative; and, therefore, at his request the following cases are published. They are all that have come under my observation, and they are all copied from my notes as taken at the bedside of the patients; and if the details may on some points appear diffuse or irrelevant, my apology must be, that, in studying any new disease, it has been my habit, as far as possible, to mention every fact and circumstance connected with it, believing that it is often as important to know what was not, as well as what was present.

Case I.—I saw Mrs. S., aged 35, a remarkably fine healthy person, the wife of a grocer, on the 25th of September, 1857, when she told me she had been suffering for some days past from a violent pain in the epigastrium, shooting through to the scapulæ, which she attributed to indigestion, and requested me to give her "something for it." There was a certain degree of fever present, which induced me to give her a saline mixture, and instructions for the management of a slightly febrile attack. I was prevented seeing her again till the 28th, when she told me that the medicines had produced no benefit; and the febrile state having passed off, I gave her a tonic. On the 29th I was called to see her at 11½ P.M., and as the fever had returned, the salines were resumed. On the 1st of October vomiting came on (of pure bile), and there was some diarrhœa, the stools being liquid, copious, and dark; the pain in the epigastrium, which had continued, was now very distressing. Six grains of calomel were given (in spite of the diarrhœa) at bed-time; a blister was applied to the epigastrium; and a mixture containing soda, henbane, and prussic acid, given every four hours. These measures afforded much relief to the pain and the vomiting, but the purging continued. On the 3rd of October the same condition of the bowels remained, and, attributing the

purging, which resisted treatment, to the condition of the secretories, which were much vitiated, a dose of calomel, colocynth, and henbane was given; the vomiting having also returned, she took an effervescing mixture, with ammonia and prussic acid.

On the 5th the patient had experienced great relief, the vomiting had ceased; and on the 6th her condition was so far improved, that I considered her convalescent.

On the 7th, as I was going to see her, I met her husband, who told me she thought she was much better, but that she was angry with me for having salivated her. On arriving at the house, she told me she was better, but angry at being salivated; but there was not any evidence of ptyalism, the gums being free from inflammation, and there being no fœtor present. There was, however, a copious creamy secretion over the gums and the mucous membrane covering the lips and cheeks; and on examining the fauces, I found the uvula and the whole of the left of the velum covered with a thick, yellowish-white coating, causing very little or no pain or inconvenience.

The nature of the case was now evident. Sulphate of quina in full doses was given; nutriment *ad libitum*; wine pretty freely; and a strong solution of hydrochloric acid ordered to be applied to the throat. Dr. Heslop was called in in consultation.

I may here observe, that during the whole course of the disease, I had been unable to satisfy myself fully as to its nature, and had confessed the fact to her friends. The vomiting had been most distressing, and I frequently saw pure bile, which had been brought up. The diarrhœa had been a troublesome symptom, the stools being dark and offensive; and with these was combined a state of recurrent feverishness, which a good deal perplexed me. The most striking feature was a peculiar depressed expression of countenance, most remarkable about the eyes, which made me feel anxious and uncertain for some days, till one of her sisters told me there was a cause for mental inquietude, which I hoped had accounted for the symptom.

Unsatisfied with the symptoms, and having had my attention directed to diphtheria, I had daily examined the fauces till within a day or two of the 7th, when, finding nothing unusual, I had dismissed the Boulogne throat from my mind altogether.

Dr. Heslop saw her with me at 4 P.M., and concurred in the diagnosis. The following mixture was ordered instead of the quina, and the other treatment continued:—Tincture of the sesquichloride of iron, 3 drachms; dilute hydrochloric acid,

2 drachms; water, 8 ounces; an ounce to be taken every third hour. The acid lotion (very strong) was rubbed over the fibrinous deposit with a camel-hair pencil frequently.

October 8th. Bad night; great prostration; countenance pretty good; skin cool, moist; urine free; tongue quite clean, moist, and large; thirst urgent; appetite good; she took broth very freely through the night; bowels opened many times; stools fluid, black; she has spat a good deal in the night; the fibrine is removed from the uvula, velum, and fauces, but a number of spots continues on the mucous membrane lining the lips; the mucous membrane of the fauces is red, not violet-coloured; she swallows with ease; there is not any swelling of the glands.

October 9th. Very good night; much better till within the last few hours, when she vomited again, by which she is pulled down; great prostration. Tongue clean and large, dry in the centre, moist at edges; has taken nourishment freely; bowels not moved since yesterday; countenance more depressed; skin moist, cool; pulse 84, with more power. The exudation has entirely left the throat, and she is free from pain, tenderness, or inconvenience there; the white spots have left the mucous membrane of the lips.

10th. She was much improved when I saw her last night, but she had a bad night from cough; countenance less depressed; skin cool; pulse feeble, 96; tongue smaller, healthier, quite moist; appetite very good, takes plenty of food and wine; bowels relaxed six or seven times during the night; recurrence of exudation on the mucous membrane of the lips; deafness, which has troubled her from the first, much better. Ten drops of laudanum were ordered to be added to each dose of the mixture.

11th. Good night; countenance improved; skin cool, relaxed; pulse 84, very feeble; tongue quite clean and moist, losing its *beefy* character; appetite good; bowels not relaxed; perfect absence of exudation. Quina ordered instead of the iron, which was very nauseous.

15th. Her progress has been so satisfactory that I have no note since the 11th. Last night I was summoned suddenly to see her, on account of a sharp attack of vomiting and purging, which has been restrained in the night by prussic acid and laudanum. No return of the exudation. She is much exhausted by the attack. Presuming it to arise probably from too copious feeding, which has been vigorously pushed, I reduced her diet, and gave her ten drops of laudanum after each motion, whilst the purging continued.

16th. Good night; tongue clean; appetite better; no vo-

miting; bowels not open during the night; countenance improved; skin moist; pulse very feeble indeed; continue the quina.

No further note was made; but she gradually recovered, and went into the country for change of air.

The sanitary condition of the house was very bad: the yard close, with a drain in it, which was often very offensive; in the adjoining yard was a slaughter-house, where a number of pigs was kept; the sleeping and sitting rooms looked into the two yards. Before she had well recovered, her husband was seized with typhus, and was saved with difficulty.

Case II.—Mrs. B., wife of a butcher, aged 26.

October 8th, 1857. Countenance much depressed; pulse 26, small; skin quite cool; urine scanty; centre of tongue covered with a dirty white fur, edges red and moist; some thirst; vomited this morning; appetite pretty good; bowels relaxed several times during the night, and three times this morning; stools fluid, dark, and offensive; some pain in the head and extremities; no intolerance of light or sound; slight cough; no pain in chest; no pain in abdomen; menses regular; no pain or swelling externally about the fauces, and no tenderness on external pressure; no pain, tenderness, or difficulty on swallowing, or any uneasiness whatever about the throat or fauces. The uvula is "smeared over" with a thin, white film, and a small patch or two is seen on the velum, on each side of the uvula; there is also a minute patch on the mucous membrane of the upper and lower lip; little redness of the fauces. She has not been in very good health for some time past, and has been much depressed by the loss of a child four months since. A fortnight since she was taken with shivering and pain in the back and head. She continued poorly till the 5th, when I saw her at 7 o'clock P. M. Her chief complaint then was pain in the head, and violent pain in the sacrum, with slight feverishness; this was relieved by ammonia and henbane. On the 5th she took two "stomach pills," which purged her severely, this not being their usual effect; since that, the bowels have continued purged frequently, the stools remaining dark and very offensive. She has got gradually worse, and the prostration has increased. Her symptoms have appeared to me anomalous, and she has seemed depressed without adequate cause. There is a pig-sty, with a sow and pigs, not two yards from the back door, and a slaughter-house and cow-shed not ten yards. Scarlet fever near.

She was ordered the following draught:—Tincture of ses-

quichloride of iron, half a drachm; dilute hydrochloric acid, 15 drops; tincture of opium, 10 drops; every fourth hour. Strong hydrochloric acid lotion to the throat; with wine, broth, and stimulants freely.

9th. A pretty good night: she says she has something phlegm-like rising in her throat, which makes her sick; *she has vomited once "as bitter as gall."* Bowels much more quiet; tongue less furred, healthier; thirst; appetite pretty good; takes beef-tea freely. Not the slightest tenderness in the fauces, or pain on swallowing; there is a slight increase in the exudation, not much, none in the mucous membrane of the mouth; no cough; pulse 120, pretty full; countenance much improved; she says she feels better in herself. Draughts to be continued, and to have six ounces of wine.

10th. Countenance flushed, not so distressed; pulse 120, with moderate power; urine free; tongue furred in centre, clean at edges, moist; appetite good; bowels quiet. The exudation of fibrine is now pronounced and well marked all over the velum and uvula, of a dirty white colour, probably from the iron; she has suffered a good deal from the throat all the night; no external pain, swelling, or tenderness; has much flatulence. Treatment continued.

11th. Delirium in the night; countenance improved; skin warm; pulse 120, full, soft; tongue clean, moist; appetite good: bowels not opened in the night; the velum, uvula, and arches are covered thickly with the dirty lymph; the pharynx is free; respiration 36, rather stridulous; a little cough in the night, with some wheezing; she has no pain or difficulty in swallowing, and the pain in the throat is "nothing to speak of." The draughts to be continued; to have some brandy.

12th. Delirium not so severe; bad night; countenance improved; skin warm and moist; pulse 120, pretty full; tongue moist; thirst not urgent; takes plenty of nourishment, and asks for it; swallows freely without pain; bowels opened once freely; respiration 36, with some stridor; the fibrine is not so thick, a good deal of it being removed, and the mucous membrane seen in its place: there is a good deal of the membrane covering the inside of the lips and cheeks, which may be peeled off in places, leaving the membrane sound and free from wound; her strength keeps up. Treatment continued.

13th. Better night, more sleep, and less delirium; countenance good and warm; pulse 120, with power; urine quite free; tongue clean and moist. She takes large quantities of nourishment and stimulants. The aspect of the mouth is en-

tirely changed; a great deal of the exudation is removed; the mouth almost filled with a quantity of tenacious mucus, very like the secretion in acute bronchitis, sticking to the teeth and fauces, and so tenacious that I drew out a string more than a foot long; large flakes of fibrine have escaped from the mouth, and some, as large as a shilling, are now obvious in the vessel; respiration 36, short; some cough. Her health keeps up. Muriatic acid gargle as strong as she can bear; other treatment continued.

14th. Better night, no delirium; countenance more exhausted; skin warm; pulse 120, more feeble; tongue quite moist, a few white spots on it; takes food freely; bowels open once; "throat feels as if all the skin was off;" exudation much less, easily removed, leaving the mucous membrane rather tumefied and livid, with a few white spots on it very much like "muguet;" respiration 40, more easy. Treatment continued.

15th. Good night, some sound sleep, no delirium; pulse 116, more power; tongue clean; less thirst; she feels that she cannot bear so much stimulant; takes plenty of food; bowels regular: "if my mouth and throat were well, I could take anything, but they are very tender." Exudation less; tenacious mucus less, and less tenderness. The violet colour of the mucous membrane is now well marked. Respiration 36, no cough; feels much more herself than she has done; lips and teeth much blackened by the iron. To take two grains of sulphate of quina every third hour.

16th. Four hours' sound sleep; no delirium; tongue quite clean and moist, rather violet-coloured; she swallows much better; countenance good; pulse 120, with power; respiration easy, no cough; no swelling or tenderness in the throat or of the glands, nor has there been any throughout.

17th Progress satisfactory. The secretion is nearly gone from the mucous membrane of the mouth, leaving the surface dusky, but quite entire; there is an increase of the exudation on the fauces and uvula, but it has a different appearance, and red points are seen through it. The strong acid lotion has not been applied for two days, during which some of the exudation has certainly increased on the pharynx; the mouth has been constantly washed with the weaker acid gargle, with the best results, and the tenacious secretion has been entirely removed. The quina to be continued, and the strong acid lotion to be again applied to the pharynx.

18th. Very good night; countenance excellent; pulse 104, with power; tongue quite clean, less beefy; no thirst; appetite good; bowels regular. The stronger acid lotion has had

a most marked effect upon the exudation on the pharynx, which is now almost entirely gone.

19th. Condition most satisfactory; exudation fades away before the acid, and is now nearly gone.

22nd. Satisfactory progress; well, but weak.

No further note was made, and she gradually regained her health and strength.

Case III.—Richard Bagless, aged 42; October 20, 1857; journeyman painter. Countenance distressed; skin moist; pulse 96, soft, and extremely compressible; urine free; tongue covered with a dirty white fur, moist, beefy at the edges; thirst; nausea; bowels opened. The mucous membrane of the throat is congested and of a livid colour; the uvula and lower part of the velum covered with a coating of fibrine, which makes them look as if they had been just dipped in some semi-fluid tallow; the pharynx, too, is covered with a similar deposit; pain and difficulty in swallowing; difficulty in articulating; pain, tenderness, and some swelling of the sub-maxillary gland. He had a bad night last night, with some delirium and head-ach; frequent cough, with copious secretion of tenacious mucus from the fauces; respiration short and hurried, but free from difficulty.

The attack commenced on the 17th, with shivering, followed by pain in the throat: on the 16th he had severe pain between the scapulæ, and loss of appetite; the bowels have been disordered and relaxed for a fortnight. His general health has been good. Hydrochloric acid gargle; hydrochloric acid and steel, as in former cases.

October 21st. Bad night, some delirium, a little quiet sleep this morning; countenance flushed and anxious; skin hot and moist; pulse 96, exceedingly compressible; tongue less furred, moist; less thirst; takes pretty freely of broth; no vomiting; bowels not open since yesterday; pain on swallowing, the same; pain in the throat generally less; the velum has a livid violet colour; the uvula is much enlarged, and covered with a thick coating of fibrine; the pharynx is also similarly covered; great difficulty in swallowing; profuse secretion of a tenacious character, hanging in long ropes, much like the secretion in acute bronchitis; there is another part of the secretion which deposits from the frothy one, and does not mix easily with water. Some tenderness of the sub-maxillary glands, not much; very little swelling. He says the pain in the throat came on suddenly—"in an instant."

22nd. Bad night, no delirium; countenance better; skin

warm and moist; pulse 96, very feeble; urine free; tongue clean, quite moist; wants something to eat; bowels opened twice, stools fluid and black; difficulty of swallowing *after* the food gets through the pharynx; the uvula remains much enlarged, and still covered with the fibrine; the tonsils and back of the pharynx are also covered; profuse discharge of tenacious secretion; cough. Treatment continued, with eggs and broth and ale.

23rd. Bad night; no delirium; countenance improved; skin cool, moist; pulse 124, very feeble: tongue clean, moist; thirst; has appetite, but not the power of swallowing; bowels opened twice; tonsils and uvula less swollen; some small red points seen through the exudation on the uvula; glands less enlarged and less painful; secretion of same character, profuse; great prostration; cough troublesome. His chief complaint is a pain shooting up from the stomach to the throat, and difficulty of swallowing; respiration tranquil. Medicines continued; ale *ad libitum*, with some wine or brandy.

24th. Bad night; little delirium this morning; countenance much depressed; skin cool and moist; pulse 96, feeble and extremely compressible; urine copious; tongue clean, moist; appetite bad; no sickness; bowels not opened since 23rd; less discharge from the mouth; the exudation is disappearing; there is less lividity on the velum; he swallows much better; prostration very great. Continue the medicines and diet.

27th. I have been prevented seeing him till to-day, but the treatment has been continued; countenance tranquil; skin natural; pulse 122, fuller; tongue moist; appetite returning, a little thirst; bowels open; the swelling of the throat and fauces has declined, the lividity is quite gone; the fibrine has almost all disappeared from the uvula and pharynx; uvula nearly of the natural size; he swallows without much pain or difficulty; he is very weak. To take a grain of quina every four hours.

29th. Good night; countenance good; sleep natural; pulse 84, feeble, soft; tongue quite clean and moist; no thirst; appetite getting voracious; bowels regular; very little pain in swallowing; there is still a patch or two of fibrine on the uvula and pharynx, not much, the surrounding mucous membrane looking pale and healthy. Continue quina and acid lotion.

31st. Continued improvement. Throat much improved; the uvula and free edges of the velum seem *skirted* with lymph, and he feels convinced himself that the posterior nares have been affected. *It seems as though the fibrine had been removed from those parts where the acid had been freely applied, but that it still lingered in those situations which the lotion could not reach.* Quina and the acid lotion continued.

November 8th. He took the quina till the 5th, when, as his progress did not seem very rapid, the iron was resumed, with the best results, his improvement becoming more rapid again; to-day he called my attention, for the first time, to his feet: he says they have been cold and benumbed since the 1st, but he had forgotten to name it, the feeling began to return on the 4th, since which the skin has commenced to peel off the soles of his feet, it is now coming off in large flakes; they are not painful, but they were when they first began to regain their sensibility. There is nothing like desquamation on any other part of the body, nor has there been any numbness anywhere else.

This man lived in a low, unhealthy part of the town; a number of dirty privies and pig-sties are situated very near to his back door.

Case IV.—Mr. H., aged 67, a respectable manufacturer; February 2, 1858. Countenance pretty good; skin cool and moist; pulse 92, soft, occasionally intermittent; urine high-coloured, loaded; not much thirst; appetite bad; bowels open; no headach; some cough, with thick puriform expectoration; breathing easy, tranquil; no pain in the abdomen; tongue covered with an exudation in spots like "muguet;" there is a deposition of fibrine on the palatine arch and tonsils, in large flakes; but not in one continuous patch; no difficulty in swallowing; no pain, tenderness, or swelling under the jaws, or about the glands of the neck.

I saw him last night, and found him much prostrated after a week's violent purging, from taking "Morrison's pills;" the tongue was then covered with numerous white spots like "muguet," and large flakes of fibrine covered the tonsils and the velum.

He is a fine healthy man of his years; never had much sickness; caught cold ten days since, and has kept his bed a week, with violent cough and expectoration. The exudation on the tongue was first observed on the 31st of January, and I saw him last night, and gave him the iron and hydrochloric acid mixture, as prescribed in former cases, and the strong hydrochloric acid lotion, wine, and nutriment.

February 3rd. Bad night; countenance more flushed; skin warm, moist; pulse 90, full, very soft, and jerking; urine scanty, high-coloured, deeply laden with lithates; tongue dry, much relieved from the exudation; thirst rather urgent; vomiting once in the night; takes little nourishment; bowels not opened since the first; exudation much removed from the

fauces, velum, and inside of the cheeks; the throat has a very livid appearance; some cough, with muco-purulent expectoration; medicines continued; to have a dose of castor-oil.

4th. Refused food all day yesterday; and at night I saw him very much exhausted; he was induced to take food, and has continued it all night, and has rallied well. Countenance improved; skin warm; perspiring freely; pulse 84, soft and feeble; urine free, much loaded; tongue moist; some thirst; no sickness; bowels opened once; the exudation is entirely removed from the tongue and lining of the mouth and velum, but there is still a little on each tonsil; the *violaceous* colour of the mucous membrane is well marked; the exudation is easily peeled off.

5th. Last night, quina and muriatic acid were given, as he had got very tired of the iron. Comfortable night; takes plenty of nourishment, but no wine, of which he seems afraid; tongue clean, moist; less thirst; no sickness; bowels opened in the night; skin cool, moist; pulse 80, fuller; urine still much loaded; tongue and fauces less violaceous; a few spots like "muguet" on the tongue and lining membrane of the cheeks, not in flakes; the spots are frequently touched with the lotion. Repeat the quina, wine, and nourishment.

6th. Last night there was a decided increase of the exudation all over the tongue and lining of the mouth; he has not taken so much food through the day, and his pulse had got more feeble; the respiration was hurried; the iron mixture was resumed; the acid lotion was used in a weaker form, as he complained a good deal of it. He had a pretty good night; countenance much depressed; skin moist, cool; a good deal of sweating in the night; pulse 88, soft and jerking; urine still loaded; tongue quite clean, moist; a little thirst; takes liquid nourishment pretty freely; bowels open; the exudation has quite left the tongue, and nearly left the mucous membrane of the mouth; there is still a little on the tonsil; there is some abrasion of the mucous membrane of the lower lip, which has a livid look; pain in the right shoulder like rheumatism.

7th. A pretty good night; countenance good; skin cool, moist; pulse 76, soft; urine copious, less loaded; tongue clean, moist, less livid; appetite pretty good; bowels open; the exudation has quite left the tongue, and nearly left the throat; there is still a little on the lower lip; cough rather troublesome; pain in the arm better. At the wish of his son, Dr. Heslop saw him to-day, but as he was going on as well as possible, no change was made in the treatment. Dr. Heslop, however, impressed on him (at my request) the importance of stimuli, which (being

a very abstemious person) he took less freely than I should have wished from the first.

February 13th. The treatment was followed, but less vigorously, till to-day, when my notes say:—"He is quite well, but weak; he sits up; appetite very good; bowels open; sleeps well; exudation and lividity of the mucous membrane quite gone; relaxed skin, so well marked, has quite left him."

Mr. H. lived in a low and damp situation, and a very offensive drain ran against that end of his house where his sitting-room and bed-room were situated.

On carefully examining the four cases recorded, we find a bad sanitary condition accompanying each of them; in two the residences of the patients were in close apposition to slaughter-houses and pig-sties; in one, to a number of dirty privies and pig-sties; and in one, to an offensive drain, which absolutely ran along and against the end of the house where the patient lived and slept. Circumstances more calculated to produce an "adynamic condition," and what Isambert calls an *intoxication particulier*, could scarcely exist; and that some potent deleterious agency was necessary to induce this condition is proved by the fact that all of the patients were in a social position which placed them above want or deprivation of any kind; that three of them were in the prime of life; and the fourth, a hale man, who had hardly known what sickness was, and who had always lived judiciously and abstemiously. I may add, that two finer women than the female patients are seldom seen.

The cases were all preceded by a disordered condition of the digestive organs, vomiting and purging being prominent premonitory symptoms. In one case an accustomed aperient had produced an inordinate effect, and it may be questioned whether the "Morrison's pills" were the sole cause of the purging in Mr. H.'s case.

Great prostration, singularly marked on the countenance, was one of the prominent features in every case. It is difficult to describe the countenance; but, when once seen, it will not be forgotten, nor will it fail to strike the attendant with much anxiety. It was particularly marked in the two females.

The condition of the skin and pulse were in complete unison with the countenance; the former, though hot, being quite relaxed and moist; and the latter singularly soft and compressible.

The appearance of the exudation seems to be dependent, in some degree, on the part of the membrane on which it is

thrown out; on the tongue, lips, and inside of the cheeks it is seen in creamy-looking spots, of various sizes, like "muguet;" whilst on the velum, the tonsils, and the pharynx, it was deposited in one layer, more or less continuous; in three of the cases it looked much like wet wash-leather, but in Bagless' case it looked semitransparent, and, as I said before, the "velum and uvula looked as if they had been dipped into some semi-fluid tallow."

The lividity of the mucous membrane (violaceous colour) surrounding the exudation was well marked in each case, in some part of its course, though it did not in every case precede, or even accompany, the first deposition of fibrine; and it must not be overlooked, that whether diphtheria produces any abrasion of surface or not (and on this point there seems to me to be some difference of opinion), it is certain that each of the patients complained of great soreness of the lining of the mouth and fauces, as the exudation was passing off; and a state approaching ulceration (to say the least) was manifest. How far this was due to the very strong application used, I am not prepared to say, but of the fact I have no doubt.

Though all the patients had cough with expectoration, there was no symptom of affection of the larynx; it is true that a slight stridor was heard for a short time in Mrs. B.'s case, but it was an unimportant symptom, and soon passed off; in fact, that organ never gave me the slightest anxiety.

In two cases delirium was noted; and in one, only, enlargement and tumefaction of the glands; in fact, the absence of subjective symptoms, referable to the larynx and pharynx, was a remarkable feature in all the cases except that of Bagless.

The efficacy of the treatment generally must be judged of by the general results of the cases; but the special efficacy of the iron was shown in Bagless' case, where the favourable progress was arrested when the quina was substituted for it, and, restored when the iron was resumed. So, in Mr. H.'s case the substitution of quina for the iron (at the patient's urgent request to have his medicine changed) was followed by a retrogression, and an increase of the exudation, a favourable change following the resumption of the iron.

The power of the hydrochloric acid to remove the exudadation was well marked in each case; it disappeared before it. Its mode of action on the fibrine seemed clearly shown in the cases of Bagless and Mrs. B.; in both the application of the acid was followed by the formation of a copious, tenacious, gummy-looking fluid, which was discharged from the

mouth in large quantities, and which could be drawn out into long strings.

It seemed to me that the exudation was dissolved in the acid, forming a gummy product, which I believe is the ordinary effect of hydrochloric acid upon fibrine. The acid appears to dissolve the secretion, and the iron to give the system power to resist the formation of it.

In speaking of the treatment of diphtheria, we must not forget to insist upon the importance of the *free and persistent* use of nutrients and stimulants. Brandy, wine, ale, broths, and jellies, must be given with an unsparing hand, and, if necessary, *forced* upon the patient. In Mrs. B.'s case they were given *ad libitum*, and then were hardly sufficient to keep up the flagging powers of life. So profound, indeed, was the prostration, that for two or three days (in spite of the very large quantity she took) I expected to find her dead every time I went to see her. Mr. H., too, was at one time nearly dying from exhaustion, and generally I believe his progress was retarded by his dislike to and fear of stimulants.

The flushed face, the hot skin, and the quick pulse, are symptoms generally believed to be incompatible with the administration of iron, but they must not deter us from giving it, and giving it freely; nor must they make us hesitate for one moment in the use of stimuli. Fothergill proclaimed this, for he says:—"Though the degree of heat and quickness of pulse would be enough to dissuade persons who have not seen the disease [diphtherite] from giving cordials and stimuli so liberally as is required; yet we are not to be guided by these symptoms so much as by the faintness, and depression of pulse, and the increase of putrescency in the fauces;" and I know of no disease in the treatment of which we should so constantly bear in mind the words of Dr. Stokes, when he says:—"No man is fit to treat either general disease or local inflammation, until he has conquered that fear of stimulants which a long course of erroneous teaching has instilled into his mind."

My object in this paper has been to record facts, not to enter upon a discussion of the nature of diphtheria; but if the cases I have recorded are fair specimens of that disease, one is at a loss to know how it can be confounded with any inflammatory affection; and I cannot help thinking that those authors of eminence who have described it as inflammatory have never seen it; or that the disease must present itself in two perfectly distinct and different forms; or, more probably, that two different affections pass under the name of "diphtheria."

For myself I cannot doubt that I have had to deal with a veritable blood-poison, marked by a profound adynamia, and requiring the most energetic tonic and stimulant treatment.

In conclusion, I must say that I should not have ventured to have published these four cases, and have advocated so strongly the *steel* treatment on such a slight basis, if I had not been well acquainted with the views of Dr. Heslop, the extent of his opportunities of observation, and the success of his treatment, for to him belongs the credit of suggesting the treatment I have been endeavouring to enforce, treatment which I believe bids fair, if properly carried out, to be as successful in diphtheria as mercury is in syphilis, or quina in ague.

Art. V.—*Report of a Case of Cæsarean Section; with Observations.* By Edward William Murphy, A. M., M. D., Professor of Midwifery, University College, London; formerly Assistant Physician in the Dublin Lying-in Hospital.

I was sent for July 11, 1858, by Dr. Frazer, of Harrington-square, to see a patient of his in difficult labour, and found the pelvis so extremely distorted that the Cæsarean section was necessary in order to remove the child. The case is a remarkable example of mollities ossium, and the condition of the pelvis produced by that disease: it is also important as illustrating circumstances which render such an operation imperative.

I am indebted to Dr. Frazer for the following history of the case.

Mrs. N., aged 30, was married about sixteen years, and gave birth to seven children, all born at the full time, without any unusual difficulty in the labour. Six are now living, the eldest 15, the youngest 2 years of age. Three or four months previous to the birth of her last child (May 26, 1856), she complained of constant weariness, and dull aching pain in the lower part of the back, and down the thighs, increased on walking. She continued to go about, however, up to within an hour or two of her confinement. Dr. Frazer had not seen her for several days before, but, calling in accidentally, he found her in labour, and just about to send for him; the labour was quite natural, and terminated in less than two hours from the time he saw her. She progressed favourably for a few days, but in consequence of a dispute with her nurse, who, she thought, put something into her gruel which "burned up her inside," she became feverish, with quick pulse, hot and dry skin, furred

tongue, &c. This continued for several days, and her subsequent recovery was slow and incomplete. At the end of three weeks Dr. Frazer ceased to attend her. She was then able to go about, but complained of weakness and *slight* pain, or rather uneasiness, in the loins and thighs. Dr. Frazer did not see her again professionally until two months previous to her last confinement, July, 1858, but was informed by her husband that about three months after her former confinement she went into Hampshire for a few weeks, and was benefited by the change. She continued to take moderate exercise, but always complained of aching in the back and thighs, and had "an imperfect walk." In September of last year she went to various places in the vicinity of London, was able to walk distances, and on several occasions walked from her residence near Burton-crescent to the Caledonian-road Station, and back again. In October, 1857, she became pregnant, after which the pain and difficulty in walking increased. She went to chapel, January 1, 1858, but was not afterwards able to leave the house.

In April, 1858, Dr. Frazer was again engaged to attend her, and found her sitting at her work-table in the parlour; she stated that for many weeks she had been unable to go up stairs; consequently, her bed was moved down to the back parlour, from which her husband assisted her into the front room, where she remained all day sitting on a chair, until she was again moved to her bed-room. Dr. Frazer was sent for in consequence of sickness of her stomach, which was removed by appropriate remedies. Each time that he saw her, she was dressed and sitting in her chair; and after his fourth visit he ceased to attend her. No opportunity was given him of discovering the deformity, which, no doubt, then existed, and was increasing; nor had he been sent for until July 10, when the pains of labour, which commenced on the 8th, began to assume a decided character. His partner, Dr. Andrews, saw her, and on making a vaginal examination was surprised at the extreme narrowness of the outlet of the pelvis. Dr. Frazer saw her in the afternoon, and observed the same peculiarity; the promontory of the sacrum could be touched, but it was extremely difficult to reach the os uteri. The pains were feeble, and the patient somewhat exhausted; an anodyne was ordered in the hope that, if sleep were procured, more vigorous pains would advance the presentation.

July 11th. Dr. Frazer, finding no alteration, requested my assistance. I saw Mrs. N. about 2 P. M., and, having made an examination, found it impossible to introduce two fingers between the pubic rami; by pressing back, however, against the

coccyx, and by using the left hand, I was able to get two fingers within the brim of the pelvis. In order to do so it was necessary to bend them upwards and forwards, to avoid the strongly projecting promontory of the sacrum. The pubic bones were doubled back so much that the space in the brim seemed hardly two inches in the antero-posterior measurement; on the left side it was contracted to half an inch, and on the right was open to about two and a half inches. Passing the finger around the brim, the space seemed scarcely larger than a florin, through which protruded the os uteri and membranes; the head could just be touched. The nature of the difficulty being thus revealed, I felt satisfied that it was totally impossible to attempt perforation; in fact, no instrument could be used for that purpose. The patient, however, had no pains for some hours previously, and I was anxious to see what the uterus might do, if it were possible to get the presentation within reach of instruments; we agreed, therefore, to see her again at 5 o'clock P. M.; there was no change. We saw her at 9 P. M.; the pains had returned for a short time, but made no difference; we left her in charge of Dr. Andrews for the night.

12th. The patient had slept a good deal during the night, and the pains returned in the morning, and continued stronger than before, until I saw her at 12 o'clock. The membranes were ruptured, and the funis had descended and ceased to pulsate, but there was no other alteration in the pelvis.

My mind was made up as to the mode of delivery, but I wished to have another opinion, and Dr. West's assistance was requested. He made the most careful examination, and arrived at the same conclusion, that the only mode of delivery was the Cæsarean section. Having the advantage of his opinion in confirmation of my own, no time was lost in taking measures for its performance.

The patient was taken into University College Hospital, placed in a ward prepared for the purpose, and about $10\frac{1}{2}$ o'clock, Mr. Quain, who kindly rendered his assistance, performed the operation. The contents of the rectum and bladder being previously removed, the patient was placed under the influence of chloroform. She was then brought to the table, and the abdominal parietes being pressed firmly against the uterus, an incision was made in the line of the linea alba; the uterus being exposed, a second incision was made through its parietes; the placenta protruded, was at once removed, and the child extracted. The section of the uterus caused considerable hemorrhage, which, however, was soon controlled by its contraction. The intestines, which had slightly protruded,

were replaced; the edges of the wound were united by the hare-lip suture, and a space left at the bottom of the wound for the discharges. She was then bandaged, placed in bed, and 25 minims of sedative liquor of opium given in beef-tea.

13th. 7 o'clock A. M. The patient slept at intervals during the night, and seemed refreshed; pulse 120; tongue dry; skin hot, but moist. The urine was drawn off, and 15 minims of sedative liquor of opium, ordered every four hours. To have milk and lime-water *ad libitum*. 5 P. M. Complains of sickness and pain in her bowels; she had vomited several times, and suffers great thirst. To take 5 minims of black drop every second hour. 8 P. M. The pain and sickness relieved, but pulse increased to 160, rapid and feeble; she is restless and not inclined to sleep.

In the course of the night the restlessness increased, and amounted to jactitation, with hiccough and blowing respiration. These symptoms of exhaustion increased, and in the morning—

14th. She was moribund. She died at 12 o'clock.

15th. Twenty-five hours after death an autopsy was made; the abdomen was much distended and resonant. There was no attempt at union in the line of the incision; on opening the abdomen a large quantity of bloody serum escaped; the intestines were distended with flatus, especially the stomach, which occupied the whole upper part of the abdomen. Lymph was found on the peritoneum, both lining the abdominal parietes and the intestines. Near the wound the small intestines were of a dark red colour, and injected. The uterus presented a dark red surface anteriorly; the divided edges were everted and widely separated, without any attempt at union. The incision divided the uterus at the right side, about half an inch from the broad ligament. The internal surface of the uterus presented nothing remarkable. When the stomach was laid open, a large quantity of flatus escaped. It contained very little fluid; some undigested currants and a small quantity of feculent matter were found in it. The heart and lungs were healthy.

The Pelvis was brittle throughout; all the articulations were loose, and the pubic and ischiatic portions of the coxal bones moved on each other, much more, however, on the left than the right side. Both iliac bones were much distorted and very carious, the left being perforated in several places, and as thin as tissue paper; the right ilium was also very thin and diaphanous. The horizontal rami of the pubes were parallel, the pectineal eminence on the left side almost touching the

promontory of the sacrum; the space by measurement was half an inch, but the bones were quite easily pressed together. The descending rami were also closed in, the left being carious and eaten through at the pubic and ischiatic junction. The acetabula were also eaten through, and the head of the femur was in a similar carious state. The brittleness of the bones was such that Mr. Tuson, the artist to whom I am indebted for some beautiful wax models, found it impossible to take casts in plaster of Paris. In each iliac fossa the periosteum was raised from the bone by a large quantity of serous fluid. The sacrum was strongly bent forward, and carious toward the lower part; the coccyx moveable. The measurements are as follows:—

The brim: antero-posterior measurement, from promontory of sacrum to the centre of the symphysis pubis, was $2\frac{5}{8}$ inches; but as the rami were parallel, the distance from the promontory to the pectineal eminence on the left side was only 0·7 of an inch; on the right side, 2·2. The transverse measurement was 3·4 The cavity was, transversely, 3·4; the horizontal rami of the· pubes were distant from each other only 0·8 of an inch; the descending rami, 1·1; the space between the tubera ischii, 2·5. The iliac bones were so bent upon themselves that the

distance between the anterior and posterior parts of the cavity of the ilium was, on the left side, 1·1; on the right side, 1·5; distance between antero-inferior spine of ilium and posterior part of ilium, on the left side, 2·7; on the right side, 3·4. There was no observable difference in the stature of the patient; the

disease, therefore, seemed confined to the pelvis. The child's head was large and well ossified.

This case seems to me interesting in two points of view: as an example of the disease which caused this extreme deformity, and as illustrating conditions which render the Cæsarean section imperative. Mollities ossium commenced in the pregnancy of 1856, about January in that year, but caused so little impediment that she was able to go about until within an hour or two of her confinement, and then was delivered in two hours without the least difficulty. In October, 1857, she became again pregnant, and the pain and difficulty in walking gradually increased so much that she was not able to leave the house after January 1, 1858. She remained sitting all day in the parlour, and was moved to and from her bed-room. She complained of nothing, and did not think it necessary to inform her medical adviser about anything more than a sickness of her stomach, which was soon relieved. Thus matters remained until July, when her labour commenced, and the most extreme distortion of the pelvis was revealed. The disease made such rapid progress that the bone was in many places eaten quite through, the articulations destroyed, and the whole pelvis so brittle, that the artist could not take a plaster of Paris cast of it.

The deformity produced was extreme, and would have justified the Cæsarean section in the first instance, but I delayed, I confess it, a great deal too long in determining upon the operation, in the hope that the action of the uterus would become more vigorous, and might so expand the pelvis that the head would be within reach of instruments. I am satisfied that, had my hopes been realized, and that had I been able, either with the crotchet, craniotomy forceps, or cephalotribe, to have seized the head and forced it through the pelvis, its condition was such that it would have been broken to pieces, and the patient's death the result. I have the more reason, therefore, to regret the delay, because, had the operation been timely performed, the child's life, at least, would have been saved. The case, it appears to me, proves that if the distortion in the pelvis is extreme, and ascertained to be so, it is useless to defer this operation, in the vain hope that the pelvis can be expanded sufficiently to drag the child through with instruments

The case illustrates the conditions which render the Cæsarean section unavoidable, in consequence of extreme disproportion. No other mode of delivery was possible; and, had not this operation been performed, the case would have been analogous to those recorded in which the woman was allowed to die

undelivered. The earliest case of this kind is one related by Mauriceau in his Observation xxvi.; which is remarkable as being that given to Chamberlan as a test to prove the superiority of his newly invented forceps. Mauriceau had a triumph, because Chamberlan could not succeed, and heads his Observation, "D'une femme qui mourut avec son enfant dans le ventre, qui n'en pût jamais être tire par un Médecin Anglais qui avoit entrepris de l'accoucher;" but the case was of that character that Mauriceau could not introduce his hand, although a small one, to apply the crotchet, the contraction of the pelvis was so great. The woman died undelivered; the uterus was ruptured, and Mauriceau attributed this to Chamberlan's forceps having been forced through the womb. It is scarcely necessary to say that Chamberlan could not get his forceps into a space where Mauriceau could with the greatest difficulty introduce two fingers of a very small hand[a]. Mauriceau refused to perform the Cæsarean section, as being certainly fatal to the mother; she was, therefore, suffered to die undelivered.

Dr. Hamilton, in the fourth edition of his "Outlines of Midwifery," gives the case of Mrs. Scott, aged 30, with whom labour began March 22, 1795, and continued to April 2, eleven days! when she died of ruptured uterus. She could not be delivered by instruments. Dr. Hull, in his remarks on this case, states:—"I have the honour to be acquainted with an accoucheur of very great eminence, who, in the course of a long and extensive practice, had been called to five women in labour, whose pelves were so exceedingly distorted that he found it impossible to deliver them by embryulcia, although

[a] J'ai vû une petite femme âgée de 38 ans., qui étoit en travail de son premier enfant depuis *huit jours*, ses eaux s'étant écoulées dès le premier jour qu'elle avoit commencé à se trouver mal, sans presque aucune dilatation de la matrice. Etant restée en cette état jusques au quatriéme jour, je fus mandé pour en dire mon sentiment à sa Sagefemme. . . . . Neanmoins pour tout cela [his directions] elle ne put jamais accoucheur et son enfant qui venoit la tête devant, mais la face en dessus resta toujours au même lieu, sans pouvoir avancer au passage, que cette femme, qui étoit très-petite, avoit tellement étroit, et les os qui le forment si serres et proches l'un de l'autre, et l'os de croupion si recourbé en dedans, *qu'il me fut entierement impossible d'y introduire ma main pour l'accoucher, quoi que je l'aye assez petite*, lorsqne je fus mandé pour lui donner ce secours, trois jours ensuite de la premiere fois que je l'avois vûë; de sorte qu'y ayant tâché inutilement il ne me fut pas possible d'en venir à bout, ne pouvant introduire ma main qu'avec *un extrême effort*, á cause de l'étroitesse du passage d'entre les os, et l'ayant introduite elle se trouvoit *si serrée*, qu'il, m'étoit impossible d'en remuer seulement les doigts, et de la faire avancer assez pour ponvoir conduire un crochet avec sureté, afin d'en tirer cet enfant qui étoit mort depuis près de quatre jours, suivant l'apparence; ce qu'ayant essayé je declarai l'impossibilité d'accoucheur cette femme à tous les assistans, qni en étant bien persuadez, me prierent de lui tirer son enfant du ventre par l'operation Cesarienne, laquelle *je ne voulus pas entreprendre, sçachant bien qu'elle est toûjours trés certainement mortelle à la mere.*—*Mauriceau*, vol. ii., p. 23.

he has, I believe, had occasion to use the perforator and crotchet as frequently as any man in the kingdom. In one of these cases, the presentation of the child was preternatural, and, judging it proper to make an attempt to turn the child, he, by great perseverance, succeeded in pressing his hand through the superior aperture of the pelvis, but he met with so much difficulty in effecting this, that he immediately relinquished his design of attempting to bring down the feet of the child, and was satisfied with being able to disengage his hand. As the Cæsarean section was not submitted to in any of these cases, *all the ten lives were lost*"[a]. Dr. Hull gives, also, the details of three cases that died undelivered, in consequence of the impossibility of extracting the child through the pelvis. Jane Kinnerly was eight days in labour, and died of ruptured uterus. In Sarah Fletcher's case it is stated:—"Every attempt to accomplish her delivery proving fruitless, I [Mr. Dunlop] contented myself with giving cordials to support her strength, and anodynes to mitigate her pains. She continued to sink rapidly, and was seized with convulsions about 4 in the afternoon, which soon proved fatal." Ellen Gyte, after sixty hours' labour, died of ruptured vagina, after several attempts to deliver by craniotomy had failed[b].

To these facts, more, I am persuaded, might be added to prove that there are certain cases in which the degree of contraction in the pelvis is so great that delivery through it is impossible. If so, it is criminal to make no effort to save the child. It is, therefore, of the utmost importance to determine the kind of case, and the degree of disproportion which would satisfy the practitioner that he is authorized to have recourse to the Cæsarean section.

In all these cases the cause of the deformity was mollities ossium, and the kind of deformity produced was such that the difficulty of delivery may at once be recognised. The outlet is so contracted that it is impossible to make a satisfactory examination; the brim of the pelvis can scarcely be reached, and, even then, the space is so small, and the power of moving the fingers so slight, that the os uteri and presentation often cannot be touched. If I were to meet with such a case again, I should at once decide on the Cæsarean section, because I hold it to be the solemn duty of the practitioner, who is given two lives in his charge, to use his best efforts to save one, if he cannot preserve both; and in a case where the preservation

[a] Hull's Defence, pp. 221, 222.
[b] Hull's Appendix to Translation of Baudelocque, pp. 152, 159.

of the mother's life by the sacrifice of the child is impossible, to endeavour at least to preserve the child, although the operation be fatal to the mother. We have no right to suffer her to die undelivered. But the Cæsarean section is not of necessity a fatal operation, even in such cases as these, although, undoubtedly, the risk to the mother is much greater when she is the subject of a disease which interferes so much with the reparative powers of nature. Dr. West has well pointed out one great cause of ill success in this operation,—the fact that the uterus after delivery undergoes a process of disintegration while being reduced to its original size, and that even then the newly formed tissue is more lowly organized; hence the difficulty of reunion in the wound. But, beside this, mollities ossium is itself a disease of disintegration which greatly interferes with the healing process. As a proof, I need only refer to Mr. Whitehead's case, which is so faithfully detailed[a]. His patient survived the operation. She lived to the thirty-second day after its performance, but on the ninth day symptoms of the original disease returned, and she died from its effects on the hip-joint. Throughout, the changes in the appearance of the womb were most remarkable, at one time presenting healthy granulations, which were again absorbed. Adhesions observed on the third day disappeared on the eighth, and again reunited. But the manner in which nature combats this difficulty is well shown by the post-mortem examination. Mr. Whitehead states that "the external wound, as well as that in the uterus, was excluded from the general peritoneal cavity by a barricade formed by adhesion of the parietal and visceral surfaces of the peritoneum imperforate at every point, and situated at a distance of half an inch from the external wound"[b]. Had this patient escaped from the disease which led to this

[a] Medical Gazette, 1841, vol. ii., pp. 939, 977.

[b] Mr. Whitehead gives the following account of the post-mortem examination, thirteen hours after death:—"The upper part of the wound, three inches in length, healed by granulation. A small knuckle, the size of a hazel-nut, of the ileum had insinuated itself between the edges of this part, but did not protrude beyond its surfaces; was covered by granulations; the rest of the wound was flabby, and the granulations, which appeared so luxuriant and healthy a week before, had become partially absorbed. The incision into the uterus was at its fundus, and at this time an inch in length; both sides were studded with granulations, a circumstance somewhat remarkable, considering the unhealthy appearance of the external wound. I believe that the wound in the womb had been healed, as previously mentioned in the note of the 23rd, but subsequently separated at the time the reparative process had ceased to go on externally, and that the adhesions were destroyed by absorption. The external wound, as well as that in the uterus, was excluded from the general peritoneal cavity by a barricade formed by adhesion of the parietal and visceral surfaces of the peritoneum, imperforate at every point, and situated at the distance of half an inch from the external wound."—*Op. cit.* p. 978.

uture, it is to be hoped success will be attained. of the treatment of lunatics rought before Parliament— ch and the Irish land have l when Radicalism has either tisfied on one or two other is there is reason to antici- of the matter will not be that of Mr. WYNDHAM are o reduce them to the rank of or which the law cares not, to hedge about the law on straint and guardianship of s should effectually prevent are apt to creep into such ion.

ND GENERAL.

0 colliers out of work in the and they express their determina- last.

TRIAL EXHIBITION AT ALTONA. r. J. H. Sillitoe, of the Trinity appointed agent for Great Britain n Industrial Exhibition, to be 27th of August.

pinning machinery, intended will be taken out in the African es Liverpool for West Africa to- be set up by English artisans.

KE.—Altho gard to

like that, but he did venture to say that meeting, and perhaps from others which diocese, were rather high. He believe Christ—which was sent into the earth for who had to walk and struggle in the mid —was given not to a single individual cherished by him and kept sacred from —it was sent, as their services of las them, to men who were confirmed f when they were gathered together a place; and when they gazed at the marvel of the conquest of th handful of men to whom th entrusted they must take with them was by their being united as one, in on head, that they had been able to conc they must also take with them the early apostles were greatly strong aga and principalities of the world, beca strength;—and then if they passed solemn services of Trinity Sunday- a glance of heaven, where men after th contemplate God, not singly but joi before the great throne in a common would be able to understand why un all spiritual matters, as union was st matters. (Applause.) The hope h ference, and the object he propos this: There was an enormous div in the Church of England; this div them not alone, but haunted and tro body with which he was acquainted honed by a cordial and free inte

800 bales as estimated by you. The
ned in the note to your 27th paragraph
materially disagree with actual results
ich they are based, be corrected (*vide*
still remains a fact that the exports are
ave been in any year since 1861-62.
tion of improving cotton cultivation
officiating chief commissioner entirely
preferring selection and development
ties, where they are promising, to intro-
ed. There seems to be no reason why
tem, applied to the Hingunghat plant,
considerable improvement in a staple
s a high place in European markets,
hand it can hardly be expected that
hich have attained prominence under
imatic conditions, should stand success-
olent variations of the Indian climate.
e New Orleans seed in Dharwar can
pon as a precedent for the dryer and
of these provinces. It is unfortunate
ts tried last year on so considerable a
de a superficial area, should have been
asonable rain; but still it has been
mething which may, it is to be hoped,
her operations. So far the experience
is strongly in favour of Hingunghat
uthern portions of the province, but
s regards the Saugor and Nerbudda
Deputy Commissioner of Raepore re-
ndholders fully admit the superior
gunghat seed. In parts of Chanda
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unts from Jubbulpore are not so fa-
leputy commissioner doubts whether
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uld, however, be fully tried, and the

that the Protestants and [illegible]
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Upon their banner was inscribed
forget. (Hear, hear.) They cam
it—to re-echo through the count
immortal William—"The Pro
liberties of England, God help
(Great applause.)

Mr. John Thompson, High Sh
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Protestant constitution of the
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and second, by support extended
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James I., le
whole of

operation, she would have recovered from the operation itself. Nature had still sufficient power to form a barricade to protect the peritoneum from exposure.

Recovery from this operation, when the distortion was caused by mollities, has been recorded by Mr. Barlow, Dr. Radford, Mr. Knowles, and Mr. Goodman, proving that, even under unfavourable circumstances, the Cæsarean section is not of necessity fatal to the mother. The prospect of recovery is, however, greatly diminished by delay, by too much meddling, and by fruitless efforts to extract the child through the pelvis. When a patient is allowed to remain six, eight, and twelve days in labour, there is not much chance either for mother or child; but even forty-eight hours is a dangerous risk. Kaizar laid down twenty-four hours as the limit of safety; and as this is quite sufficient time to determine the nature of the case, it should not be exceeded. Frequent examinations are also unfavourable; they often cause great pain and distress, and exhaust the patient; but by far the most mischievous practice of all is making attempts to break down the head by instruments. The failure is followed by mischief in the passages, by inflammation, and fever, which would not otherwise arise. The important point, however, is to determine the case itself in which this operation is indispensable, and this, I think, may be decided by a single, or, at the most, two or three examinations of the pelvis. If the distance between the rami of the ischium and pubes will only allow one finger to pass easily; if the coccyx be strongly bent forward; if, passing the fingers within the cavity of the pelvis, it is found contracted, the sacrum projecting strongly forward; if, when the brim is reached, the distance between the linea-ilio-pectinea and sacrum is only half an inch, an inch or an inch and a half on either side of the pelvis; and if the circuit of the brim seems contracted to a space less than three inches diameter,—no other operation seems to me available, and, therefore, should be at once performed. In the case related, as well as in others recorded, there was the additional proof that none of the ordinary instruments used for extracting the child could be used.

Mollities ossium is a disease but rarely met with, and seems to be produced in particular districts. More cases are reported from Lancashire than London. I cannot find any in the Dublin Reports. It is, therefore, very necessary not to confound the distortion produced by this disease with that produced by rickets. When rickets occur in childhood, the deformity is characteristic, and totally different from that caused by mollities ossium; the deficiency of space is confined to the brim of the pelvis, and if this difficulty be overcome, none

other remains. Rickets, however, may take place in the adult, and, if so, in consequence of the upright position of the body, the deformity assumes the character of mollities ossium; the cavity and outlet of the pelvis are contracted as well as the brim; the pelvis is expansile; the contraction is never so great as to interfere with the use of instruments; and there is everything in favour of a successful operation, whether with the forceps or crotchet, according to the degree of disproportion. Such cases as these, I fear, have been sometimes reported as cases of mollities ossium, merely because the character of the deformity resembled that produced in the pelvis by this disease, and a successful operation by craniotomy in such a case has been advanced as an argument for its use in cases where its performance would be fatal. To prove the nature of this disease, the difficulties it presents, and its dangers, I shall quote from Dr. Robert Lee's Clinical Reports "the only case of distortion from malacosteon that he had met with in practice, and the softening was entirely confined to the bones of the pelvis." Mrs. Jarvis, who, when young, had spent several years in Manchester, had given birth to three living children without any difficulty. "During her fourth pregnancy she suffered much from pains about the sacrum and ilia, and became unable to walk." Dr. Lee was called to her "January 17, 1830, and found the pelvis greatly distorted, the whole head of the child above the brim, and the os uteri not more than half dilated; the pains had nearly ceased, and she was quite exhausted." With great difficulty the crotchet was got within the head, the craniotomy forceps having utterly failed. "More than three hours elapsed before Dr. Lee succeeded in dragging the head with the crotchet into the cavity of the pelvis, and not until the point of the instrument was passed up and fixed outside the head behind the jaw. The bones of the head were all torn to pieces." . . . . "The placenta came away in half an hour, and the patient recovered, as if the labour had been natural." Again, in 1832, she became pregnant, and Dr. Golding performed the same operation, with the same difficulty, and the same success. In 1833 miscarriage was induced at the fifth month, and the discharge of the liquor amnii was followed in eight days by the expulsion of the embryo, without artificial assistance. In 1835 premature labour was induced at the seventh month, and "the fœtus was expelled without artificial assistance, but its head was squeezed so as to be quite flat at the sides." On the 19th January, 1836, when the same patient was at the end of the sixth month of pregnancy, Dr. Lee endeavoured to induce premature labour by puncturing the mem-

branes. The os uteri, however, was so high up that he could not reach it with the point of the finger, or introduce the catheter so as to perforate the membranes. On 12th February he renewed the attempt, but again failed, partly in consequence of the fore-finger of his left hand being still nearly deprived of sensation and power of motion, from a dissection wound, followed by deep-seated inflammation of the joints. Dr. Lee resolved to try ergot of rye, and gave five grains every hour for several days. On the 18th Mrs. Jarvis informed him that she had felt pains in the back and down the thighs for about ten minutes after taking each powder of the ergot, but that no other effect had been produced by them. The ergot was continued every three hours during the day till the 23rd, when pains like those of labour came on, but they gradually ceased, and the ergot was discontinued in consequence of the sickness and vomiting it produced. On the 28th the ergot was again tried, but as it produced nothing but violent sickness, she refused to continue the use of it any longer. On the 14th March another attempt was made to perforate the membranes with the instrument invented by Mr. Holmes for the induction of premature labour; but this also was unsuccessful, in consequence of the instrument not being sufficiently curved. On Thursday, the 24th March, Dr. Lee passed up into the uterus a stiletted silver catheter with a probe point, and much bent, which had been made for the purpose, and with this the membranes were easily perforated. The liquor amnii immediately began to escape, and labour pains commenced. The following day—"then the beginning of the ninth month—

"Friday, 25th. The pains continued feeble and irregular during Saturday, Sunday, and Monday, and on Tuesday they became strong and regular. At 6 o'clock on the morning of Wednesday, the 30th, the os uteri was thick and unyielding above the brim of the pelvis, and very little dilated. The presentation could not be ascertained. The pains continued strong and regular. Mr. Simpson, of Gray's-Inn-lane, took 3 oz. of blood from the arm, and gave 40 drops of laudanum. *At this time Dr. Lee feared that it would be necessary to have recourse to the Cæsarean operation, to prevent her dying undelivered.* At 4 P.M. the pains continued, the os uteri was much more dilated, and Dr. Lee ascertained that the nates presented. He immediately resolved to attempt delivery by passing the crotchet through the anus completely within the pelvis of the fœtus, fixing it upon the bones, and extracting. This succeeded, and the pelvis and lower extremities were delivered without much difficulty, and a strong tape passed around the

body of the child. The abdominal and thoracic viscera were then drawn out with the crotchet, and the upper extremities brought down. The fore and middle fingers of the left hand were then slid along the back of the child, and pressed forward till they touched the occiput. The perforator was then passed up to the occiput, and a free opening made in it. The crotchet was next passed up, and its point forced through the opening, fixed in the base of the skull, and strong traction made for some time. At last he succeeded in extracting the head, with the bones all crushed together. After this severe and tedious operation she was left in a very exhausted state, and died the following day, with vomiting and other symptoms of ruptured uterus. On examining the body after death, Dr. Lee found the muscular coat of the anterior part of the neck of the uterus lacerated"[a].

I have quoted this case nearly at length because of its importance: first, as proving the rarity of this disease in London. It was the only case of malacosteon that Dr. Lee met with up to that date. Secondly, the distortion, although great, was not to such a degree as to render the use of the perforator and crotchet impracticable, as happened in the case now brought forward. Thirdly, it demonstrates the extreme difficulty and danger of such an operation to the mother. Had the Cæsarean section been performed, the risk could not have been greater, and the child's life might have been preserved.

I hold this principle, that no practitioner is justified in taking away human life, even from an unborn child, unless he is nearly certain that it will be the means of saving the parent; and in cases such as these, where the mortality from craniotomy is as great as the Cæsarean section, he is bound to adopt the operation that will save the child.

Cases of extreme disproportion sometimes are met with, not caused by mollities ossium; and occasionally tumours so obstruct the pelvic cavity as to render the extraction of the child by instruments extremely difficult. In such cases the question of the propriety of the Cæsarean section again arises, and is much more difficult to decide than in cases of extreme distortion from mollities ossium.

Much confusion has arisen in discussions on this question, by the introduction of arguments, I should rather call them sophisms, derived from statistics. A comparison has been in this manner instituted between perforation and the Cæsarean section, greatly in favour of the former operation.

[a] Lee's Clinical Midwifery, pp. 74, 78. 1842.

Thus, while the mortality from hysterotomy has been raised to 86 per cent., that from craniotomy is only 20 per cent.; or, in other words, while, by the latter operation, one in five are lost, by the former only one in five are saved. If this conclusion were justly drawn, it would negative the Cæsarean section altogether; but it is forgotten that no comparison of this kind can be fairly made between these operations; because, while, on the one side, the danger to the mother from gastrotomy is uniform, always present, that from craniotomy varies precisely as the degree of disproportion for which the operation is performed. No operation is more easy to perform, or safer for the mother, than craniotomy, when the contraction of the pelvis is not great; but if the disproportion be extreme, no operation is so difficult, or more dangerous to her. In the one case it may be undertaken because the head is impacted in the pelvic cavity; the head is broken up, the difficulty is removed, and the patient recovers. In another, as that quoted, the disproportion is extreme; the operation most tedious and difficult to perform; the child is at length torn away, crushed to pieces, and the mother dies of ruptured uterus. It is only cases of this latter class that should be compared with the Cæsarean section; but statistics place all on the same level, and lead us to a false conclusion.

Again, with regard to the mortality from the Cæsarean section, any notice of the causes which must increase it are of necessity omitted. The delay before the operation was undertaken, exhausting efforts previously made to deliver by instruments, and such like accidents, make this operation more fatal than it otherwise would be. It is only necessary to compare the British and Foreign reports of mortality from the Cæsarean section to prove this. On the one side, you have the results of hesitation and fear to venture on so bold a step. On the other, nothing of the kind, but, perhaps, rather too great promptitude. British mortality is, consequently, frightfully increased, while that from the Continent presents a much more favourable aspect. The number of Cæsarean sections in America is small, but the results agree much more nearly with Continental than with English practice. There were twelve such cases, and of these, eight mothers recovered, and only four were lost. Continental and American statistics are, therefore, decidedly in favour of this operation. The British tables as strongly protest against it.

I place very little confidence in such statistical conclusions, but would rather seek to determine this very difficult question by comparing case with case. Each operation has been per-

formed in precisely similar conditions, and a comparison of the facts and results will lead us much nearer to a just conclusion than any which may be derived from statistics at present both limited and imperfect.

The cases, independently of mollities ossium, in which we might be called upon to decide upon the question which operation should be preferred, are:—First, cases of *extreme* distortion of the pelvis from rickets; secondly, pelvic tumours; and thirdly, the pelvis of dwarfs. The rickety pelvis generally presents a deformity of one character; the promontory of the sacrum is pressed forward towards the symphysis pubis, which is rather expanded than otherwise; the cavity of the pelvis is shallow, and the outlet wide, but having the coccyx strongly bent forward. Want of space between the sacrum and pubes and the projecting coccyx are the chief difficulties. If the former be overcome, the latter will not give much trouble; but cases sometimes are met with in which the antero-posterior measurement is so small that craniotomy becomes an operation of extreme difficulty and danger, and the question naturally arises, whether, under such circumstances, the Cæsarean section should not be preferred. It is such cases as these which lead to the question, what is the smallest space through which the child can be extracted from the pelvis? The space means that between the promontory of the sacrum and the pubes; and this has been laid down by different authors, according to their experience. Denman, who had witnessed the case of Elizabeth Sherwood, delivered by Dr. Osborne successfully, lays it down that "if the cavity of the pelvis be so far closed that it should in *any part very little exceed one inch* [Elizabeth Sherwood's was less], of which examples have sometimes occurred, we might presume that the head of the child, though it were reduced to the least possible size, could not be extracted through it, and then the necessity and propriety of performing the Cæsarean section would be allowed, whatever aversion we might have to it, especially if we had reason to think that the child was living, or to conclude that it was not dead"[a]. Osborne, who performed the operation, fixes upon an inch and a half as the least space. Since then, authors have given *minima* varying from an inch to two inches[b]. In a case of this kind the comparative merits of either operation may be illustrated by two cases. In one,

[a] Denman, p. 532.

[b] Least conjugate measurement, according to Davis, 1 inch; Hamilton, $1\frac{1}{2}$ inch; Burns, $1\frac{3}{4}$ inch; Hull, $1\frac{3}{4}$ inch; Ramsbotham, $1\frac{3}{8}$ inch; Campbell, 2 inches; Dewees, 2 inches; Baudelocque, 2 inches, French.

which came under my own notice, the conjugate measurement was an inch and a half, and was delivered by craniotomy. In the other, the space was an inch and three-quarters, and was delivered by Mr. Jackson, of Newport, who performed the Cæsarean section.

In 1847, I was requested by Mr. Codd, of Rickmansworth, to see a case of difficult labour arising from distortion of the pelvis. The woman was not more than 4 feet 3 inches in height, thirty-three years of age, and born of diminutive parents. She was perfectly healthy, and well formed, until about five years of age, when she was attacked with measles; the eruption suddenly diappeared, and was followed by inflammation of the chest. During her illness, her parents were thrown on the parish for relief, and from this time the disease commenced which produced the deformity. It chiefly affected the spinal column, and she was eighteen years old before she could walk without a crutch. There was a curvature of the dorsal vertebræ strongly to the right side, and the lumbar vertebræ formed a curve, bent so much forward that the axis of the brim of the pelvis was nearly horizontal. She became pregnant about June, 1846, and was taken in labour March 8, 1847. In about six hours the waters broke, and the pains ceased for about twelve hours. They then returned, and continued for about forty-eight hours before I saw her. She was in active labour, her spirits good, and her pulse tranquil; two fingers were easily introduced within the pelvic cavity, but at once came into contact with the sacrum, projecting so strongly forward that it had been mistaken for the head of the child. It was necessary to use the left hand, in order to make a satisfactory examination. Two fingers were bent upwards and forwards, and passed above the brim of the pelvis, and the conjugate measurement was ascertained to be an inch and a half. The difficulties which the case presented were not diminished by the circumstances in which the patient was placed, living in confined apartments, in a village sufficiently far from London to render any additional aid impracticable. Had she been in London, I should have had the Cæsarean section performed, but in Rickmansworth this was out of the question. The attempt must be made to drag the child through a space that a small apple would not pass. The operation was commenced on Thursday, March 11, at 7 P.M. The perforator was easily applied, and forced into the cranium; the bones were broken in the transverse direction only, the blades would not separate in the antero-posterior. The crotchet was introduced with great difficulty. Having at length succeeded, traction was

made during the pains, resting in the intervals. The cranium on the left side was completely broken up, but did not in the least advance. Three hours had now passed, and I thought it advisable to discontinue any further effort that night. An anodyne was given, and we returned next morning at 8 o'clock.

12th. The operation was resumed; the broken bones of the cranium protruded through the os uteri, which was half dilated. It was impossible to apply the crotchet as before. Several varieties of craniotomy forceps were tried, but could not be used in so confined a space. The point of the crotchet was at length forced through the orbital plate of the frontal bone, and a firm hold obtained; the extractive force was gradually increased to the very utmost strength, but without success; the effort to get the base of the skull obliquely through also failed. At length the bone separated at the frontal suture, and came away. Two hours were now spent, and as of necessity the soft parts were irritated by these efforts, and the woman exhausted, she was again given an anodyne, and left for a few hours. On our return we found the pulse 120. She had no sleep, because of the pains; the fragments of the head were pressed more into the brim, and by placing the crotchet on the outside, and fixing it in the fold of the neck, the head was at length extracted. There was nearly as much difficulty in the passage of the shoulders; a blunt hook was placed in the axilla, an arm brought down, and the child at length removed. It was small; putrescency commencing in the funis, but in no other part.

For six days this patient went on favourably, so that on the 19th, having passed a very good night, pulse 120, abdomen soft and free from pain, lochia natural, she felt so well that she sat up in bed, and took part of a mutton chop; but on the 20th she had passed a restless night, from a troublesome cough, and felt a great sense of weariness. On the 21st, the bowels being confined, she was ordered an aperient draught, which acted about seven or eight times, and was followed by great prostration. She was given half a grain of morphia every three hours.

22nd. She slept until half-past 4 o'clock; then asked for something to take, as she felt pain. Having had two cups of tea, she said that she felt better, and thought she could sleep. Her friends left her for about two hours, and were induced to return by hearing her moan heavily. They found her in a dying state, and she soon after sank, apparently from exhaustion.

The post-mortem inspection gave no explanation of the cause of death. There was no trace of peritonitis; the intes-

tines were distended with flatus; the uterus of the ordinary size for that period, rather softer than usual. The pelvis was found to be in the conjugate axis an inch and a half, and four and a half inches in the transverse measurement.

This case may be compared or contrasted with one reported by Mr. James Hawkins, of Newport:—

"The patient, Matilda Tanner, was twenty years old, and 4 feet 1 inch high. Her mother states of her, that she had been 'hurted in her birth.' She made no effort to talk before her fifth year, and could not speak distinctly until her twelfth year. Her deciduous teeth did not appear until she was a year old; at this age she made her first essay to walk with crutches, which she could not dispense with until she had attained the age of 10. She menstruated first in her eighteenth year; then, to the period of her confinement, only four times, at irregular intervals, and in small quantities. From the age of twelve to twenty she enjoyed uninterrupted good health.

"On the 17th February, 1858, labour pains commenced. Mr. Jackson saw her next day, and upon examination per vaginam found that the dimensions of the pelvis were very irregular and small, the last lumbar vertebra projecting so far over the brim that the antero-posterior diameter, or rather the distance between the symphysis pubis and last lumbar vertebra did not exceed *an inch and three-quarters*. Expulsive pains not having commenced, she was left until the next day.

"On the 19th, Mr. Jackson again visited her, in company with Messrs. Brewer and Woollett, both of whom coincided in the opinion that the Cæsarean section was the most feasible—the only means whereby the life of the fœtus could be preserved, and, under the circumstances, the most favourable to insure the life of the parent. Accordingly, in their presence, and with the aid of his assistant, Mr. Charles M'Ardle, having previously obtained the consent of the patient and her parents, Mr. Jackson proceeded to operate. . . . . The membranes had ruptured without interference.

"Having been placed on a table, with her legs hanging over one end, and her head and shoulders slightly pillowed up, she was put under the influence of chloroform. Mr. Jackson commenced the incision about half an inch to the left of, and about the same distance below the umbilicus, extending about eight inches towards the pubes, and parallel to the mesial line. Integuments and subcutaneous adipose tissue having been cut through, the subjacent tendinous structures and peritoneum were successively divided to the same extent as the

first incision. The uterus, being now exposed, was cut into to the extent of about six inches, bringing into view the fœtus, presenting naturally, with the funis coiled round it. The fœtus, placenta, and membranes having been carefully removed, the uterus contracted firmly almost immediately. A small portion of omentum that protruded having been returned, the parts were quickly brought together with sutures and long strips of adhesive plaster in their intervals; over this were placed a few rolls of lint, and a broad bandage being tightly applied over all, she was removed to bed.

"The baby, being detached from the placenta, was consigned to the care of a female attendant, and when seven days old, weighed 8½ pounds. From this date to the 25th she had an attack of peritonitis, which yielded to treatment, on the seventh day she had an easy night; tympanitis entirely gone; peritonitis almost gone; pulse 120; wound was opened, and sutures removed; the upper part looked healthy, and inclined to adhere; from the lower end there was a very offensive discharge. This was attended to, and from this date she continued to progress steadily, with the exception of an attack of bronchitis, which was subdued. On the 4th of April she got out of bed for the first time. Since then, she and her baby, a fine little girl, have frequently been at Mr. Jackson's surgery, and are at present in perfect health"[a].

The points of resemblance in these cases are remarkable. The disease which led to the distortion commenced in infancy, from which they slowly recovered. Tanner was obliged to use crutches until ten years of age; my patient, until eighteen. E. B. was 4 feet 3 inches; Tanner, 4 feet 1 inch in height. The antero-posterior axis of the brim of the pelvis with the former was an inch and a half; in the latter, an inch and three quarters. Both were in perfect health at the time of the operation; but here the resemblance ceased. In the case delivered by craniotomy, both mother and child were lost: in that delivered by the Cæsarean section, both mother and child were saved. The conclusion to be derived from these parallel facts is obvious, and is greatly supported by a remarkable case reported in the American journals, in which both operations had been, at different times, performed on the same patient.

In 1831, Dr. George Fox, of Philadelphia, was called in to attend Mrs. R., who had been some time in labour. On examination he found such distortion in the brim of the pelvis, the conjugate axis being less than two inches, that he

[a] Medical Times and Gazette, vol. xxxvii. pp. 488, 489.

determined to have a consultation, to determine the course to pursue. She remained in labour from the 14th to the 16th of June, when Dr. Physick, Dr Meigs, and Dr. James were called in. The Cæsarean section was proposed, but strongly objected to by Dr. Physick: yielding to his opinion, Dr. Meigs undertook to perform craniotomy. He commenced the operation at 5 P.M.; opened the cranium; and returned at 10 o'clock. He used the most powerful and long-continued efforts to extract the head, without success. She was left until the following day, when several trials at extraction were made, but were equally unsuccessful. Towards evening, some febrile symptoms presenting themselves, she was bled, given an opiate, and allowed to rest. On the morning of the 18th another attempt was made, which succeeded. Thus, thirty-three hours were occupied, from the time the head was first opened until the child was delivered; nevertheless, the woman recovered rapidly, and could walk in three weeks.

In 1833 Dr. Meigs was called upon to deliver the same patient. Finding the instruments he had previously used very inefficient, he had a trocar and a craniotomy forceps, like a tooth-forceps, made for the purpose, and with these instruments delivered her in much less time. She recovered: and in 1834, becoming again pregnant, applied to Mr. Nacrede, who, knowing her previous history, "was convinced of the impropriety in this, the third labour in the same individual, of permitting such a sacrifice of life to an innocent being." He, therefore, determined to have a consultation upon the propriety of the Cæsarean section. It was agreed that it should be performed; and Mr. Gibson undertook the operation. A female child was extracted, alive and healthy. In four weeks after the operation the woman was allowed to leave her bed, and in six weeks was perfectly recovered[a].

Towards the end of August, 1837, Mrs. R. called upon Dr. Fox to engage his services. She had completed the seventh month of pregnancy. Premature labour, in her then advanced state, Dr. Fox considered would be attended with as much difficulty, and much greater danger, than at the full period. It was not, therefore, attempted. November 5, 1837, labour commenced. She was visited by Dr. Fox and Dr. Meigs, and found by them "labouring under a good deal of excitement; pulse 106; countenance anxious and pallid, and apparently in a much more unfavourable situation than in either her first or second accouchements." Mr. Gibson and

[a] American Journal of Medical Science, vol. xvi. p. 343. 1835.

Dr. Hodge were called in, and the Cæsarean section agreed upon. A living child was extracted; and Dr. Fox states:— "Our patient had a better 'getting up' than many females after an ordinary accouchement; her sufferings after the operation were slight indeed. In twenty days after the operation she sat up, and for some days previously constantly nursed her infant"[a].

In this case the conjugate axis of the pelvis is stated to be under two inches; rather more space than in the previous cases; and yet Dr. Meigs, using his utmost skill and the most powerful efforts, failed to remove the head until thirty-three hours had passed over from the time it was first opened. This same patient was twice delivered afterwards by the Cæsarean section, and both mother and child saved. Such facts as these are sufficient to negative the doctrine that the Cæsarean section is, of necessity, a fatal operation, and prove that the risk of craniotomy is quite as great, because of the extreme difficulty of the operation. They establish, I think, the rule that in the ovate pelvis of rickets, when the conjugate axis is less than two inches, craniotomy should not be attempted, but an effort made to save the child by the Cæsarean section.

Those cases in which the passage of the child is obstructed by tumours or other morbid growths, are similar to cases of mollities ossium in this respect. A disease exists in the constitution, of which the patient may die, quite independently of any operation performed for her delivery. If such an operation be performed, therefore, it is undertaken with every disadvantage. Whether craniotomy or the Cæsarean section be selected, the risk is in every respect equal; and, being so, I feel it to be our solemn duty to save at least one life if possible. Some published cases will, I think, illustrate, if not prove, this position.

Dr. Shekleton, when Master of the Dublin Lying-in Hospital, reported in this Journal a very remarkable case, in which a tumour filled, almost completely, the pelvic cavity. The patient, Anne Parsons, aged 35, had been delivered five times in the Dublin Lying-in Hospital. The first child was still-born; the second delivered by the crotchet; the third, acephalous; the fourth, delivered in December, 1841, by the crotchet; and the fifth, in December, 1846, by the same means. In the records of the Hospital the tumour was described at that time "as being of such magnitude and density as to convey the same sensation to the fingers of the examiners as the fœtal

[a] American Journal of Medical Science, vol. xx. p 13.

head after it had cleared the os uteri. . . . The head was perforated, after fourteen hours, with no great difficulty, but it required two hours of active and unremitting exertions of three gentlemen to drag it through the pelvis; nor was this effected until the entire calvarium was removed, so that when extraction was finally accomplished, nothing remained of the head but the face and base of the skull."

July 20, 1849. Dr. Shekleton's attention was called to her as a patient, for the sixth time, of the Dublin Lying-in Hospital. She was seen in the morning, and stated that she had been in labour since the previous evening. "On examination, the same tumour, large and unyielding, was found to occupy the whole cavity of the pelvis, with the exception of a space immediately behind the pubes, which barely admitted the passage of one finger between it and the tumour; while to the right the space was much larger, owing to the tumour being to the left side. Neither the os uteri nor presentation could be ascertained. On examination of the abdomen, the uterus appeared to lie obliquely, with its fundus inclined to the left hypochondrium, and its cervix pushed into the right iliac fossa, where the head of the child lay—hard, round, slightly movable—resembling very much a tumour, for which, indeed, it was at one time mistaken. . . . . The fœtal heart was distinctly audible." Dr. Shekleton, in very clear and forcible language, states his view of the case:—

"On weighing maturely in my own mind all the circumstances of the past history and present state of the case, namely, the extreme straitness of the passage through which the child had to pass, even in the most mutilated condition, as proved by the immense amount of difficulty that was experienced in her last confinement, and which might naturally be expected to be augmented by an increase of growth in the morbid structure since that time; the strength and vigour of the child, as evinced by the stethoscope, and the certainty of its being the fifth sacrifice to the mother's chance of recovery; the woman's naturally healthy constitution guaranteed, not only by her present state, but, to a certain extent, by her wonderfully rapid recovery on the last occasion; the short time she was in labour, and the uterine pains being neither vigorous nor distressing, with a tranquil state of mind, great fortitude, and a pulse 74: all these circumstances affording presumptive evidence that it was a case in which the Cæsarean section might be performed most legitimately, and with the greatest prospect of success, I summoned a consultation of Drs.

Collins, E. Kennedy, and Johnston, late Masters of the Hospital, together with Sir Philip Crampton, the Consulting Surgeon." Dr. Shekleton's opinion was overruled; and, feeling the great responsibility that would attach to him individually if he acted in accordance with his own views of the case in opposition to the judgment of such sound and experienced practitioners, and failed in an operation which they deemed ineligible, Dr. Shekleton at once determined on yielding to their decision, and undertook the task of carrying it into effect. The perforator was introduced, the cranium broken up, and as much as possible of the brain removed by the crotchet. "5 o'clock P.M. having arrived, it was agreed to adjourn to 7 o'clock. On examination then, Dr. Shekleton found, to his surprise and regret, that the left arm of the child had fallen into the narrow space in the vagina, and no effort of his could return it, nor could a finger be passed up the side of it to determine the position of the head. . . . . The crotchet was fixed in the axilla, and such traction employed that at length the arm gave way, bringing with it the scapula of that side. By degrees the whole of the thoracic viscera, the ribs, and contents of the abdomen, were torn away, and, finally, the spine was, unintentionally, divided in the middle, and many of the vertebræ were separated. After various attempts and failures, two crotchets were at length fairly fixed in the fœtal pelvis, and, by the united alternate efforts of Dr. Shekleton and his friends, he at length succeeded in dragging the lower extremities through the os externum, and with them the right arm, attached by a strip of integument and torn muscles. In this stage of the operation the funis got entangled in the crotchet, and the placenta came away with it, but no hemorrhage ensued." Dr. Shekleton observes:—"A most perplexing and difficult operation at all times, but more especially so in the present instance, still remained to be performed, namely, the extraction of the child's head. In despair of finding any means to fix it at the brim, I [Dr. Shekleton] introduced my finger into the vagina, and there, to my surprise and satisfaction, found the stump of the dorsal vertebræ, with small portions of the ribs attached, which I instantly secured, and firmly held until the crotchet was fixed in the back of the ear externally, and the head extracted with extreme difficulty, and much flattened. Thus ended the mechanical efforts by which the delivery was at length effected, which occupied upwards of three hours at our last sitting, and which exhausted the strength and depressed the spirits of myself and friends on the occasion. . . .

In ten minutes after the operation, Anne Parsons breathed her last"[a].

The graphic language of Dr. Shekleton well describes the difficulties and *dangers* of this operation: the danger of hemorrhage; the risk of leaving the head behind in the uterus; the liability of the uterus itself giving way, which actually happened. The case may be contrasted with one which came under the care of Dr. Waller, of St. Thomas', in which Mr. Le Gros Clarke performed the Cæsarean section; an operation performed under the great disadvantage that the patient was at the time suffering under an attack of bronchitis. Having given an outline of the previous history of the case, Dr. Waller proceeds to say that—" on examination, per vaginam, a tumour of bony hardness was felt, nearly blocking up the entire pelvic cavity. From its hardness, immobility, and apparent connexion with the sacrum (for we could not separate the one from the other), it seemed evident that no child, however mutilated, could be brought through the natural passages; that nothing short of an abdominal section would be sufficient for the patient's relief. . . . . The space between the anterior portion of the tumour and the symphysis pubis was precisely $1\frac{3}{8}$ inches, while the lateral diameters were also greatly encroached upon. The operation was performed, a living child extracted, the placenta was separated, and hemorrhage had ceased; but at this moment the patient was seized with an irrepressible fit of coughing, in consequence of which, notwithstanding the utmost caution was taken to prevent such an occurrence, the intestines were forced out *en masse*. However, they were replaced, and the integuments were accurately brought together, and secured by means of the interrupted suture, an aperture sufficient to allow the escape of any discharge being left at the lower extremity of the wound.

The operation was performed February 7, 1853. The symptoms were favourable for the first forty-eight hours, but on the 9th, "a remarkable change was observed. The countenance was pallid and anxious; the lower jaw dropped; power of deglutition nearly suspended, and a cold clammy sweat over the surface. She sank at 9 o'clock P.M. The inspection after death proved that a pedunculated fibrous tumour, the size of the head of a small fœtus, occupied the whole pelvic cavity"[b].

Dr. Oldham also reports a case in which the Cæsarean sec-

[a] Dublin Quarterly Journal of Medical Science, vol. x. pp. 287, 293. 1850.
[b] Medical Times and Gazette, vol. xxvii. p. 266.

tion was performed by Mr. Poland, in consequence of the pelvic cavity having been completely filled by a scirrhous mass. The child was saved, and the mother recovered perfectly from the operation, but, as might be expected, died some time afterwards of the original disease[a].

An impartial examination of these facts leads us obviously to the conclusion, that when the pelvic cavity is occupied by a diseased mass, and will scarcely admit a space more than two inches for the removal of the child, the risk to the mother is the same, whichever operation be performed. It is, therefore, the duty of the practitioner to select that which will give him a reasonable chance of saving the child.

The propriety or impropriety of the Cæsarean section is a question of that importance that I have been induced to bring it again before the profession; the more because it seems to me that too little weight is attached in this country to the life of the infant. Dr. Meigs expresses in forcible language the doctrine commonly maintained, and "protests against the Cæsarean section being performed with any other views than those relative to the preservation of the mother, saving, always, that to preserve the child is a great additional good fortune"[b]. Against such a doctrine as this I must equally enter my protest; and hold it to be the duty, both morally and professionally, of the practitioner, to make an effort to save the infant's life in cases where its sacrifice gives no certainty that the life of the mother may be preserved. The preservation of its life must not be viewed as an accidental piece of good fortune, but as a solemn duty, when the risk to the mother of craniotomy equals, or *nearly* equals, the Cæsarean section. No conscientious practitioner would for one moment hold the balance equally between the mother's and the child's life. He would not hesitate to sacrifice the infant, if it were the means of preserving her. But in cases where there is no certainty whatever that such will be the case, where, on the contrary, the recovery of the woman after the frightful operation of tearing the infant piecemeal through the passages is looked upon as a remarkable event, a wonderful recovery, I repeat, that the practitioner is deeply responsible who will sacrifice human life for such a doubtful result.

Having no faith whatever in conclusions derived from statistics in reference to this question, I have endeavoured rather

[a] Lancet, vol. ii. p. 226. 1851.
[b] Science and Art of Obstetrics, by Meigs, p. 510.

to compare similar cases, and the results of each operation, as leading us nearer to the truth. The inquiry has led me to the following conclusions:—

1st. That there are certain cases of mollities ossium in which it is impossible to extract the child; in others, it may be possible to do so, but by an operation of such difficulty and danger to the mother, that we are not justified in sacrificing human life for such a doubtful chance.

2ndly. There are cases of distortion, in consequence of rickets, in which the disproportion is confined to the antero-posterior measurement of the brim of the pelvis; but that space is sometimes so diminished that the operation of craniotomy becomes equally difficult and dangerous as in the former case. Under these circumstances, the same rule applies with even more force; because, as the woman is generally in good health, the chances of recovery from the Cæsarean section are greater. This operation seems to me justifiable, if the conjugate axis of the brim is only two inches.

3rdly. When tumours obstruct the pelvic cavity so as to leave a space of little more than two inches through which to extract the child, the practitioner is not justified in attempting craniotomy; not only because of the danger to the mother of the operation itself, as in Dr. Shekleton's case, but because the pre-existing disease in the parent renders her life so doubtful that we are not justified in taking human life when there is every probability of the mother sinking under the disease, even if she escape the dangerous opration of craniotomy.

Lastly, I may add, that my objection to statistical conclusions is founded on the fact—1st. That the number of cases in which the Cæsarean section has been performed in these countries is not sufficiently numerous to correct the errors produced by accidental causes. The operation has been performed in several cases under every disadvantage, arising from long-protracted labour, pre-existing inflammation, and such like causes of a fatal issue, the mortality being thereby disproportionately increased. 2ndly. It is at present impossible to separate those cases in which craniotomy was performed in consequence of extreme disproportion in the pelvis from those in which the disproportion is only so great as to prevent delivery by the forceps. Consequently, the total results of such cases must be erroneous. With this objection, I shall place in a tabular form the whole number of cases reported.

Place.	Total Cases.	Mothers.		Children.		Observations.
		Living.	Dead.	Living.	Dead.	
Great Britain,	57	10	46	34	25	Cause of death in Mr. Whitehead's case doubtful.
America, .	12	8	4	6	4	Two results not reported.
Europe, . .	409	158	251	237	110	Dr. West's Table.
Total, .	478	176	301	277	139	

British Cases of Cæsarean Section.

No.	Year.	Practitioner.	Cause.	Duration of Labour.	Mothers.		Children.	
					Living.	Dead.	Living.	Dead.
1	1737	Mr. R. Smith. .	Mollities ossium.	7 days.	. .	1	. .	1
2	1739	Mary Donnelly,	. . . . .	12 ,,	1	. .	. .	1
3	1740	Dr. White. . .	. . . . .	. . .	. .	1	. .	1
4	1769	Mr. Thompson. .	. . . . .	. . .	. .	1	. .	1
5	1773	Dr. Young. . .	Rickets. . .	. . .	. .	1	. .	
6	. . .	Mr. A. Wood. .	. . . . .	. . .	. .	1	. .	
7	1774	Mr. Chalmers. .	. . . . .	12 ,,	. .	1	1	
8	1774	Mr. John Hunter.	Mollities ossium.	. . .	. .	1	1	
9	1774	Dr. Cooper. . .	. . . . .	2 ,,	. .	1	1	
10	1775	Mr. W. Whyte,	Ditto.	. . .	. .	1	. .	1
11	1777	Mr. Atkinson. .	Ditto.	3 ,,	. .	1	1	
12	. . .	Mr. Clarke. . .	. . . . .	8 ,,	. .	1	. .	1
13	1793	Mr. Barlow . .	. . . . .	5 ,,	1	. .	. .	1
14	1794	Dr. Hull. . . .	Ditto.	. . .	. .	1	1	
15	1795	Dr. Hamilton, Jr.	Ditto.	2 ,,	. .	1	1	
16	1798	Dr. Hull. . . .	Ditto.	10 ,,	. .	1	. .	1
17	1798	Mr. Kay. . . .	. . . . .	3 ,,	. .	1	1	
18	1799	Mr. Wood. . .	Ditto.	. . .	. .	1	1	
19	1800	Mr. John Bell. .	. . . . .	. . .	. .	1	1	
20	1801	Mr. Dunlop. . .	Ditto.	. . .	. .	1	1	
				Forward,	2	18	10	10

AUTHORITIES.

Case.	
1	Smellie, vol. iii., p. 422.
2	Edinburgh Essays, vol. v.
3	Hull's Defence, p. 67.
4	Medical Observations, vol. iv.
5	Manuscript Lectures, by Dale.
6	Hamilton's Outlines.
7	Do. Do.
8	Medical Observations, vol. v.
9	Do. Do.
10	Hull's Defence.
11	Hull's Defence, p. 67.
12	Mem. Med. Society, vol. iii.
13	Medical Records, p. 154.
14	Hull, p. 172.
15	Hamilton's Outlines.
16	Hull, p. 162.
17	Do. Do.
18	Mem. Med. Society, vol. v.
19	Medico-Chirurgical Transact., vol. iv.
20	Appendix to Hull's Translation.

No.	Year.	Practitioner.	Cause.	Duration of Labour.	Mothers.		Children.	
					Living.	Dead.	Living.	Dead.
				Forward,	2	18	10	10
21	. . .	Mr. Wood. . .	. . . . .	. . .	. .	1	. .	1
22	1817	Barlow and Cost.	. . . . .	. . .	. .	1	1	
23	1820	Dr. Radford. . .	Mollities Ossium.	34 hours.	. .	1	. .	1
24	1821	Dr. Radford[a]. .	Ditto.	. . .	. .	1	. .	1
25	1821	Barlow & Dugdale.	. . . . .	. . .	. .	1	1	
26	1821	Henderson. . .	. . . . .	. . .	. .	1	1	
27	1825	Dr. Radford[b]. .	Ditto.	83 „	. .	1	2	
28	. . .	Dr. Radford. . .	. . . . .	53 „	. .	1	. .	1
29	1826	Dr. Crichton. .	. . . . .	6 days.	. .	1	1	
30	1827	Mr. Knowles. .	Ditto.	30 hours.	1	. .	1	
31	1829	Dr. M'Kibbins. .	Exostosis. .	. . .	. .	1	. .	1
32	. . .	Mr. Ward[c]. . .	. . . . .	. . .	. .	1	. .	1
33	1833	Mr. Greaves. . .	. . . . .	. . .	1	. .	1	
34	1834	Dr. Montgomery.	Fibrous tumour.	. . .	. .	1	. .	1
35	1841	Mr. Ross. . . .	. . . . .	. . .	. .	1	1	
36	1843	Dr. Elliot. . . .	. . . . .	. . .	. .	1	. .	1
37	1843	Mr. Goodman and Dr. Radford.	Mollities ossium.	5 days.	1	. .	1	
38	1840	Mr. Whitehead[d].	Ditto.	. . .	. .	. .	1	
39	1843	Mr. Braid. . .	. . . . .	. . .	. .	1	. .	1
40	1843	Bailey and Hardy[e].	. . . . .	. . .	. .	1	2	
41	1845	Mr. Lyon. . . .	. . . . .	. . .	. .	1	1	
42	. . .	Dr. Wright[f]. . .	. . . . .	. . .	1	. .	1	
43	1847	Mr. Skey. . . .	Rickets. . .	. . .	. .	1	1	
44	1849	Dr. Radford. . .	Mollities ossium.	. . .	1	. .	1	
45	1849	Mr. Campbell. .	. . . . .	. . .	. .	1	1	
46	1850	Mr. Nimmo. . .	. . . . .	. . .	. .	1	1	
47	1850	Dr. Sannerman.	. . . . .	. . .	.	1	. .	1
48	1850	Dr. West. . . .	Ditto.	. . .	. .	1	1	
49	1850	Dr. Oldham. . .	Ditto.	. . .	. .	1	. .	1
				Forward,	7	41	30	21

AUTHORITIES.

Case.
21 Medical and Phys. Journal, p. 346.
22 Barlow's Essays.
23 Edinburgh Med. Journal, vol. lv. p. 67.
24 Do. Do.
25 Merriman and Churchill, p. 317.
26 Do. Do.
27 British Medical Journal, p. 45. 1856.
28 Ranking, vol. x., p. 212.
29 Edinburgh Journal, 1828.
30 Transact. of Prov. Assoc., vol. iv., p. 53.
31 Do. Do. 1831, p. 352.
32 Lancet, vol. ii., 1839–40, p. 28.
33 Lancet, 1833, p. 148.
34 Dublin Journal, vol. vi., p. 418.
35 Edinburgh Monthly Journal, 1842.

Case:
36 Churchill's Midwifery, p. 331.
37 British Obstetrical Record, v ol. i.
38 Medical Gazette, 1841, p. 940.
39 Ranking, vol. vii., p. 330.
40 Do. Do.
41 Edinburgh Medical Journal, Dec. 1845.
42 Lancet, vol. ii., 1839–40, p. 28.
43 Ranking, vol. v., p. 293
44 Do. vol. x., p. 212.
45 Do. vol, x., p. 330.
46 Edinburgh Monthly Journal, 1850.
47 Lancet, July, 1850.
48 Med.-Chirur. Trans., vol. xxxiv., p. 61.
49 Do. Do., p. 89.

[a] The child's head caught by the contracting uterus caused its death. [b] Twins.
[c] One of six cases quoted by the Lancet from "L'Experience," but the details not given.
[d] Mother died on thirty-second day, of hip-joint disease. [e] Twins.
[f] Quoted by Lancet from "L'Experience," vol. ii., p. 28. 1839-40.

No.	Year.	Practitioner.	Cause.	Duration of Labour.	Mothers.		Children.	
					Living.	Dead.	Living.	Dead.
				Forward,	7	41	30	21
50	1851	Dr. Oldham. . .	Scirrhous tumour.	. . .	1	. .	1	
51	1853	Dr. Waller. . .	Fibrous tumour.	. . .	. .	1	1	
52	1854	Dr. Simpson[a]. .	Mollities ossium.	. . .	. .	1	. .	1
53	1856	Mr. Humphrey.	. . . . .	. . .	. .	1	. .	1
54	1856	Mr. Thornton. .	. . . . .	. . .	1	. .	. .	1
55	1858	Dr. Greenhalgh.	Ditto.	. . .	. .	1	1	
56	1858	Mr. Hawkins. .	Rickets. . .	1 hour.	1	. .	1	
57	1858	Dr. Murphy. . .	Mollities ossium.	. . .	. .	1	. .	1
					10	46	34	25

American Cases of Cæsarean Section.

1	1822	Mr. Cellin. . . .	. . . . .	. . .	1	. .	1	
2	1827	Dr. Richmond, Ohio.	. . . . .	. . .	1	. .	1	
3	1827	Drs. Dougal and Vanvalsah[b]. . .	. . . . .	. . .	. .	1	. .	1
4	1835	Messrs. Nacrede and Gibson. . .	. . . . .	. . .	1	. .	1	
5	1837	Dr. Fox and Mr. Gibson, ...	. . . . .	. . .	1	. .	1	
6	1845	Dr. Brodie Herdon.	. . . . .	. . .	1	. .	. .	1P.
7	1843	Dr. Cyrus Falconer[c].	. . . . .	. . .	. .	1	1	
8	1848	Dr. A. B. Shipman[d].	A tumour. .	. . .	. .	1	. .	1
9	1850	Mr. M. H. Jetter.	. . . . .	. . .	1	. .	. .	1
10	1851	Dr. W. H. Merinar[e].	. . . . .	. . .	1			
11	1851	Ditto.	. . . . .	. . .	1			
12	1851	Ditto.	. . . . .	. . .	. .	1	1	
					8	4	6	4

AUTHORITIES

Case.	
50	Lancet, vol. ii., p. 226, 1851.
51	Med. Times and Gaz., vol. xxvii., p. 266.
52	British Medical Journal, 1854, p. 1066.
53	Do. Do. 1856, p. 779.
54	Lancet, 1857, p. 313.
55	British Medical Journal, 1858, p. 377.
56	Medical Times and Gazette, 1858, p. 481.

AUTHORITIES FOR AMERICAN CASES.

Case.	
1	New York Journal, March, 1822.
2	West. Medical Journal, Nov. 1827.
3	American Journal of Medical Sciences, Old Series, vol. xvi., p. 346.
4	Do. Do. p. 343.
5	Do. Do. vol. xxii., p. 13.
6	American Journal of Med. Science, N S. vol. xii., p. 386.
7	American Journal of Med. Science, N.S. vol. vi., p. 264.
8	American Journal, vol. xviii., p. 122.
9	Do. Do. vol. xxi., p. 538.
10	Do. Do. vol. xxxi., p. 567.
11	Do., and Charleston Medical Jour. for March, 1851.
12	Do. Do.

[a] Mother moribund before the operation.
[b] Uterus ruptured before the operation.
[c] A dwarf, 3½ feet high.
[d] Patient sinking before the operation.
[e] Cases 10, 11, and 12—the same patient, who was delivered successfully twice by the Cæsarean section, previous to the third operation, from which she did not recover. Nothing is said about the previous children. Case reported by Dr. F. Owen.

Art. VI.—*Extirpation of an Inverted Uterus by Écrasement.*

By A. H. M'Clintock, M. D., F. R. C. S., M. R. I. A.; One of the Presidents of the Dublin Obstetrical Society; Master of The Lying-in Hospital, &c.

In the former series of this Journal[a] I published the account of a case of chronic inversion of the womb, in the deligation and removal of which I assisted Dr. Johnson, then Master of this Hospital. I now submit the history of another example of this disease, that will be found, I think, to present many features of interest touching its pathology, diagnosis, and treatment. These two cases may very profitably be compared together, as they present not a few points of contrast and of similarity. These shall be noticed as we proceed.

Anne Ratigan, aged 22, mother of one child, tall, thin, and of very anemic aspect, was admitted into the chronic ward of the Hospital, September 24, 1858. She stated that for upwards of twelve months she had profuse discharges of blood from the vagina, which have greatly weakened her. At times these have been so excessive as to endanger her life. The hemorrhage always comes on at the menstrual period, and continues for fourteen or twenty-one days, but may be brought on at any time by undue bodily exertion. On making internal examination, a pediculated tumour, of pyriform shape, the large end being about the size of a walnut, was found low down in the vagina. The neck of this tumour was embraced, but not constricted, by the thin os uteri. It was moderately firm—fleshy, in fact—to the feel, and was perfectly insensible to ordinary manipulation. Its surface was smooth, and of a dark pink colour, and, when scratched or abraded, blood was discharged. She complained of no pain, and said she had not felt any, except of a comparatively trifling kind in her back—rather a sort of aching—for a short time after the more profuse losses of blood.

So far, then, her case possessed all the characters of a polypus. She was confined to bed, and got nourishing diet. Her pulse, I may remark, was small and weak, and generally beat about 80 in the minute. Some days after her admission I elicited from this patient (who was of a very quiet, uncommunicative turn) the following additional circumstances in the history of her case: that she came from the county of Meath, where she was confined of her first child fourteen months ago, under

[a] Vol. xxvii., p. 42, for the year 1845. An engraving should have accompanied the paper, and was ready for the purpose, but through some oversight it was omitted. The omission was repaired, however, in the next Number, and the plate will be found facing page 481 of the above volume.

the care of a rude country midwife; that her labour was protracted, and that much delay and difficulty occurred in the removal of the after-birth, "which," she says, "twice slipped away from the nurse," the cord having been broken in these attempts. She further informed us that ever since her confinement she has been subject to recurring hemorrhage, and also to the occasional prolapse beyond the vulva of a fleshy mass, which required manual efforts for its replacement.

This history could not fail to excite a strong suspicion that the case was one of chronic inversion of the womb. But opposed to this supposition were—the smoothness and insensibility of the tumour, and the absence of any bleeding points on its surface. Another circumstance, which at the time seemed somewhat irreconcilable with the existence of an inversion, was the small size of the tumour. In the case of Byrne, already alluded to[a], the inversion was of five years' standing, and yet it equalled in bulk a very large orange; whereas in this case, although of only fourteen months' standing, it scarcely exceeded in magnitude the healthy unimpregnated uterus.

Intending to remove the tumour with the écraseur should it prove to be a polypus, I drew it down beyond the labia by means of a vulsellum. This was effected without force, and with little annoyance to the patient. On passing the finger along the neck of the now extruded tumour, I found that the os was entirely effaced—not a trace of it could be detected; and that the vagina was perfectly continuous with the neck of the tumour at every point of its circumference, without any intervening ridge or projection, such as the os uteri would occasion. On replacing the tumour within the vagina, the os uteri again became developed, and could be distinctly felt in its former position. A bougie passed within it only a very short distance—not quite half an inch—and was arrested at this height all round. The result of these explorations led to the conclusion that there existed a chronic inversion of the womb. This opinion was subsequently concurred in by Dr. Johnson and Dr. Churchill, who were good enough, at my request, to see the case. On examining high up within the rectum (as suggested by Dr. Arnott), the uterus could be surmounted by the finger—at least, so thought Dr. Churchill and myself. Had this manœuvre been practised when the uterus was external, the indication would, doubtless, have been much more clear and satisfactory.

The case seemed in every way, as appeared to us, a favour-

[a] *Opus citatum.*

able one for attempting manual reposition. The os uteri was relaxed, the inversion incomplete, the uterus itself small, and its substance admitted of being easily indented with the finger. Accordingly, on three different occasions—viz., on the 4th, 8th, and 13th October—the taxis was tried. In each of these attempts I endeavoured to effect the reduction of the misplaced organ in the following manner:—The patient, having been chloroformed, was placed on her back at the edge of a bed, with her legs drawn up and separated. The hand was then introduced into the vagina, and firm compression and upward pressure were simultaneously made upon the body of the uterus. This was a very fatiguing piece of manipulation, the hand very soon getting benumbed and powerless. During the brief intervals of relaxation, to allow the hand to recover its power, a steady pressure was maintained against the lowest part of the uterus, by means of a round piece of wood about eight inches long, with a shallow, cup-shaped extremity. The uterus could be very distinctly felt through the abdominal parietes, and my other hand was thus able to co-operate, by making regulated pressure above the pubes. The only effect upon the uterus of each of these operations was, for the time being, to reduce the size of the fundus and body; and this diminution seemed attributable rather to the simple effect of squeezing and compressing the organ, than to any replacement of its inverted portion.

On all these occasions I adopted the course of proceeding described by Professor White of Buffalo, U. S., the report of whose surprisingly successful cases had just then reached me[a]. On the evening previous to the first operation I applied extract of belladonna very freely to the os uteri, and some hours later she got an enema of starch and laudanum. This (first) operation lasted fifteen minutes. The patient exhibited such marked symptoms of prostration—pallor, coldness of the surface, failure of the pulse, vomiting, involuntary discharge of fæces, &c.—that it was deemed imprudent any longer to persevere. Drs. Churchill and Kidd were present during the operation, and Dr. Byrne, one of the Assistants, who administered the chloroform on this and the two other occasions. The second and third attempts at reduction respectively occupied twenty-five minutes, and each time I had to desist in consequence of the supervention of a state of prostration bordering on collapse. This did not quite pass away for some hours, but probably would not have lasted so long, if the patient had not

[a] Buffalo Medical Journal, September, 1858.

obstinately refused to take any wine or brandy. Whether this alarming depression was in any way ascribable to the chloroform, I cannot take upon me to say. She certainly took a strong aversion to its inhalation, and it was with very great difficulty she could be induced to breathe it on the last occasion. In the intervals between the operations, the instrument already described was used night and morning for some minutes in pressing up the uterus. Beyond the temporary weakness just mentioned, and the occurrence of some hemorrhage, no ill effects, strange to say, followed these manipulations.

Only one alternative now remained, and that was the removal of the misplaced portion of the womb. To effect this, there was a choice between the ligature, the knife or scissors, and the écraseur. I resolved to employ the first and the last; but was not quite decided how long to leave on the ligature before performing écrasement, whether for twenty-four or forty-eight hours. In conferring with Dr. Johnson upon this point, his opinion was, not to remove the ligature under forty-eight hours at least. This sound advice was strictly followed.

At morning visit of October 20, I passed a ligature of silk fishing-line, prepared in oil, round the neck of the uterus, by means of a Gooch's canula; and having drawn it moderately tight, fastened it. The top of the canula was just within the os uteri. Very considerable pain was complained of when this was done, and in the course of two hours it much increased, and she presented symptoms of general depression, with vomiting. By the aid of warmth and mild stimulants, reaction was brought about. A grain of morphia was given in pill, soon after which the pain began to abate. At 7 P.M. the pulse was 80, and she was quite free from pain or tenderness. The ligature was tightened, and she got half a grain of morphia and two of dried carbonate of soda. The next day she was going on satisfactorily, the pulse being quiet and no pain present; but she had at times some sickness of stomach, and at midday there was a slight return of the faintness. The ligature was drawn a little tighter. The uterus, as seen through the speculum, presents a dead white colour, having quite lost the deep pink which it presented before the operation. At forenoon visit of the 22nd the only change in her condition worth mentioning was, that the discharge from the vagina, though very small in quantity, was decidedly, and for the first time, fetid. This showed that strangulation had taken place, which might have been doubted from the colour of the uterus. The ligature had now been on for forty-eight hours; and, preparatory to using the écraseur, we urged her to inhale chloroform, but this she positively refused to do, declar-

ing she would in preference suffer any amount of pain. Her endurance, however, was not put to a severe test. Drs. Churchill, Denham, and Byrne being present and assisting me, I very gently drew down the uterus with a vulsellum, until it appeared between the labia—just enough, in fact, to permit of our carrying the chain of the écraseur around it, and no more. She lay on the left side, with the thighs well flexed, and the handle of the instrument was directed backwards. The chain having been securely lodged in the sulcus made by the ligature, this and the canula were withdrawn. The écraseur (one of Charrière's) was worked very slowly, and eight minutes passed over before the uterus was severed. Pain of a severe, but not of a sharp or an acute kind, attended, but no hemorrhage of any amount. It was thought prudent to abstain from making any examination, and even from syringing the vagina. She was enjoined to observe the strictest bodily quietude, and one grain of acetate of morphia was given to her. To prevent even the slight exertion attendant upon voiding the urine, this was drawn off with the catheter for the next few days. At 2 o'clock she was easy; pulse 96; no hemorrhage. At 7 P.M. the pulse was 120; she complained of pain, and there was considerable tenderness in the hypogastric region; there had been no rigor, however. A turpentine epithem was applied to the belly, and she was ordered half a grain of calomel and the same of opium every third hour. She passed the night tranquilly, and in the morning (23rd) the pulse had fallen to 104, the pain had nearly ceased, and there only remained some tenderness and some fulness above the pubes. There was a little discharge of a serous nature from the vagina. Her pills were continued for to-day, and she was allowed some cold chicken broth, as the stomach was irritable. Her pulse at visit next morning (24th) was down to 88, and, except for the presence of some sickness of stomach, she was in every respect improved. This gradually subsided. In the course of a few days all hypogastric tenderness and fulness were entirely removed. She was not permitted to get up for a fortnight, and she returned home the 2nd December, having greatly improved in health and strength since the operation.

This case very strikingly exhibits the necessity for caution and strict investigation in the diagnosis of uterine polypi. In *nine* of the cases collected by Dr. Forbes, the inverted uterus was mistaken for polypus. I do not believe that the ordinary digital or ocular examination would, in the instance before us, have suggested, even to the most skilful and experienced, the remotest suspicion of its true nature. Had the patient, from

any motive, misstated the history of her case, or suppressed the fact of her having had a child, a grave error of diagnosis, and perhaps of practice, might have been committed. It is manifest also, from this and other cases which might be cited, that the characters of the tumour, as to size, colour, sensibility, and density, can very rarely be depended on to furnish positive information of its nature.

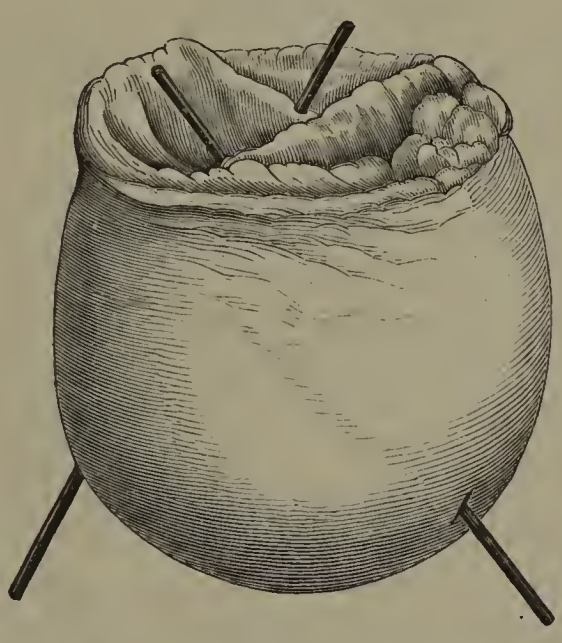
It has been stated in the foregoing history that when the uterus was drawn external, every trace of the os tincæ was obliterated, but reappeared when the organ was put back. That this actually took place was not only plain to myself, but to others who examined the patient, and among their number Dr. Johnson and Dr. Churchill. This circumstance is one worthy of notice, as bearing on diagnosis, although I am not aware that it has attracted attention before. I could not venture to say whether this sign is present in every case or not; but when it is present, we may safely regard it, I think, as a very unequivocal indication of the uterus being inverted. It has been supposed, and there are some cases to countenance the opinion, that lactation tends, by restraining ovarian excitement, to prevent or check the hemorrhage from the inverted uterus. No such effect, however, ensued in the present case. The attacks of hemorrhage were just as frequent and severe during lactation as after she had weaned her child, which she did not do till it was over nine months old, and till her own strength was utterly exhausted by the double drain on her constitution.

It was with much reluctance I abandoned the attempts to restore the organ to its natural position, having entertained sanguine expectations of success. But after giving the taxis what appeared to be a fair trial, I felt it was quite needless, if not dangerous, to persevere any longer. The same opinion, I believe, was entertained by the other gentlemen who saw the case with me. The condition in which the uterus was found after its removal seemed to throw light upon two interesting questions. There was no union at any one point between the opposed surfaces of the serous membrane in the pouch, or cul-de-sac, formed by the inverted uterus; thus showing, so far as this evidence can show it, that the hindrance to the reposition of the organ did not, at all events, depend on adhesions of the peritoneum. This pouch would easily admit the ungual phalanx of the index finger; yet so unyielding were its boundaries, that I doubted the possibility of reverting the organ without tearing some of its component tissues. In Dr. Forbes' case, also, "it was found to be quite impossible, with all the force

that could be used, the vagina being dragged down at the same time, to reinvert the uterus" after its removal from the body[a]. In the former case (that of Byrne) which I published, the pouch of the peritoneum, though very much larger, did not exhibit any adhesions. The employment of the ligature, it was expected, would cause some adhesions to take place in the peritoneum at the neck of the tumour, and thereby lessen the risk of inflammation, supervening upon the amputation of the womb; and it was supposed that its tight application for a space of forty-eight hours would suffice to attain this object, and yet not expose the patient to some of the dangers connected with this mode of operating[b]. It is to be remarked that the ligature was never relaxed from its first application.

That the uterus, after its detachment, presented no sign of adhesion in the cul-de-sac of the peritoneum, is no conclusive proof, I think, that the desired union did not take place. The portion of serous membrane thus submitted to ocular inspection was *below* the ligature, and consequently strangulated. Surely, then, no act of vitality could take place here.

Fig. 1.



The above engraving shows the size and general appearance of the uterus after its detachment. A probe is passed into each Fallopian tube. That it did not, after deligation, become livid or at all congested, but, on the contrary, of a paler hue, seemed somewhat curious. But this may be explained,

[a] Medico-Chirurgical Transactions, vol. xxxv.

[b] In a case where Velpeau excised an inverted uterus, "the finger entered the peritoneal cavity, and felt the intestines."—Forbes, *loc. cit.*

perhaps, by the well-known facility with which blood escapes by its mucous membrane from the vessels of this organ. There is no organ in the body that yields blood so frequently, and on such slight occasions, as the uterus, and its anatomical structure goes far to account for this peculiarity.

The écraseur promises to be a valuable instrument for operations upon the uterus. I have now had experience of its use in two cases, and in both with perfect safety. The former case, which occurred to me about a year ago[a], was one of amputation of the cervix uteri on account of encephaloid disease of the os; neither hemorrhage nor inflammation followed the operation, and, so far, it was most satisfactory, but the disease returned in a few months.

The peculiar adaptation of the instrument for the removal of uterine polypi is now tolerably well established. I have myself used it for this purpose on five occasions in the course of the last eighteen months, and in every instance with unqualified success. At the same time it is an error to suppose that the instrument is applicable to all cases of polypus. Chassaignac gives several cases where he used the écraseur for removing uterine polypi, and for excising the uterine neck, on account of encephaloid disease; but he does not give any example of its employment for the extirpation of an inverted uterus. The present is, I believe, the first instance where it has been so employed.

Being anxious to ascertain the conditions assumed by the os uteri at a late period after the operation, a careful examination was instituted between five and six weeks subsequently to this event. To the feel the os uteri gave no sensation that would lead one at all to suspect so great a deficiency as the absence of the body and fundus of the organ. The os tincæ was high up, was very movable—more so, perhaps, than natural, —and possessed the ordinary degree of structural density. When upward pressure was made with the examining finger, it gave rise to no pain or uneasiness in any part of the uterine region. Upon making an ocular examination by means of the speculum, the mouth of the womb was found to present the characters that we commonly meet with in a woman who has borne a number of children. It was divided into an anterior and a posterior lip by a deep transverse fissure; these lips were prominent, soft, and relaxed, readily admitting the top of the index finger; a catheter could be made, without using any force, to penetrate to about the distance of one third

[a] A report of this case was published in the Dublin Hospital Gazette for 1857, vol. iv., p. 84.

of an inch up the cervical canal. The accompanying illustration will serve to give some idea of the characters of the part[a].

Fig. 2.

In the case of Byrne (formerly published) the state of the os tincæ, three weeks after the excision of the uterus, very much resembled that in which it is usually found eight or ten days post partum, large, soft, and patulous. Mr. Windsor, with a view to ascertain this point in his case, made a vaginal examination, ten weeks after the operation, and the os presented the same characters apparently as in the case of Ratigan (related in this paper). Mr. Windsor says that "it did not appear to deviate at all from the healthy condition;" and again, "that its long diameter was directly laterally, and would admit the tip of the middle finger"[b].

Dr. West, in his work on the Diseases of Women, gives a table showing the results of operations for the extirpation of the displaced organ. Of the fifty cases contained in his table the operation was abandoned in *two*, terminated fatally in *twelve*, and successfully in *thirty-six;* thus giving a death-rate of exactly 1 in 4. I cannot help thinking that the result of any operative procedure that may be adopted is likely to be influenced by the size of the inverted uterus, and also of the pouch of the peritoneum. In the present instance the volume of the uterus, as we have seen, was very small, scarcely exceeding

[a] Both the wood-cuts in this paper were engraved by Oldham, from drawings by Connolly.

[b] Medico-Chirurgical Transactions, vol. x.

its normal size, and the result of the operation was in every way satisfactory. The bulk of the uterus varies considerably in different cases, irrespective of the duration of the misplacement. In Byrne's case, of five years' standing, the uterus "about equalled the head of a five months' fœtus"[a]; and in Ratigan's case of fourteen months' standing, its size was little, if at all, above the normal standard. Whether the degree of inversion has any influence in producing this difference, I cannot take upon me to say.

Since this paper went to press I received a note from Dr. O'Brien of Johnstown-bridge, county of Kildare, telling me he had seen, in compliance with my request, the patient Ratigan, on December 27th, three weeks after her return home; and that "she is suffering no inconvenience whatever, and appears stronger and more active now than at any former time." She has had no appearance of menstrual discharge.

Art. VII.—*On Staphyloma of the Cornea.* By B. Wills Richardson, F. R. C. S. I., Member of the Court of Examiners of the Royal College of Surgeons in Ireland; one of the Secretaries to the Surgical Society of Ireland; Surgeon to the Adelaide Hospital.

During the course of last winter session, I brought before the Surgical Society of Ireland some sections of a well-marked specimen of white staphyloma removed by operation. Since that period I have examined other specimens of this form of staphyloma. As these, however, did not present any new feature of pathological interest, the description of the first may be applied to all.

As far as I am at present informed, it is to Mr. Wharton Jones we are indebted for the earliest correct observations relative to the pathology of staphyloma—a name that has been, as some writers observe, too indiscriminately applied to different prominences on the surface of the eyeball. But, as he remarks, the name "staphyloma" was originally given to that projection which "occupies the place of the cornea, and is, according to the opinion of all writers, the cornea itself degenerated and distended, together with the iris, which has become adherent to it throughout its whole extent; the anterior chamber being of course annihilated." As we proceed in Mr. Jones' communication, we come to *his* explanation of the formation of the

[a] *Op. cit.*, p. 47.

staphyloma, which has been corroborated by Mr. Bowman; and likewise by the preparations that I exhibited at the Surgical Society. I was unable to have an engraving ready for the report of the meeting of the Society, that appeared a few days afterwards in the Dublin Medical Press. The object, indeed, of the present communication is the publication of the illustration that I have since had executed (Fig. 1).

Fig. 1[a].

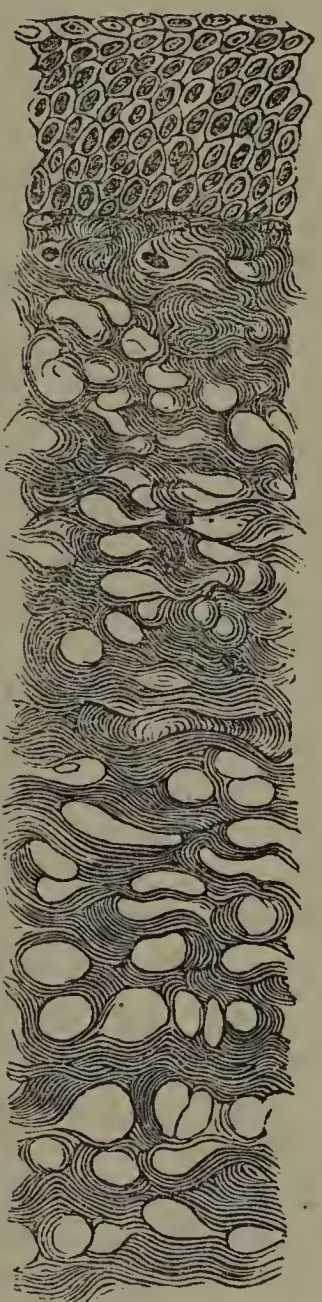
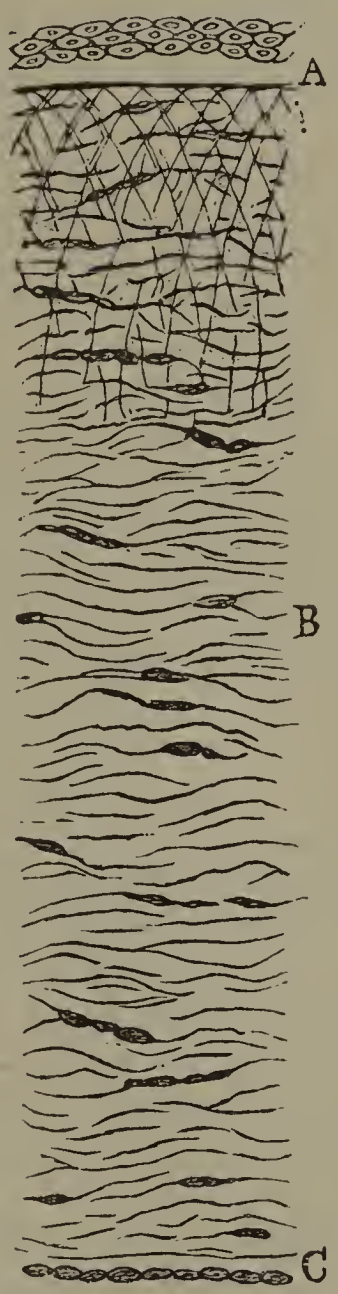


Fig. 2[b].



In order that the reader may contrast the appearance of the diseased with healthy structure, I have introduced a drawing

[a] Enlarged representation of a vertical section of staphyloma. At the upper part of the figure a dense layer of epithelial-looking cells is seen: the lower cells being oval, the upper scaly. This layer resembles a section of human cuticle. Beneath it is a fibro-areolated structure, which was attached to the iris. A few nuclei are intermingled with the areolæ.

[b] Enlarged view of a vertical section of the human cornea. A, Anterior elastic

made from a vertical section of the cornea in its normal condition (Fig. 2).

A comparison of these illustrations, will, I hope, render apparent the great difference in structure presented by the preparations, and will assist the reader in appreciating the accuracy of the following observations of Mr. Jones:—

"If," he writes, "in scrofulous, catarrhal, or catarrho-rheumatic ophthalmia, there be a penetrating ulcer of the cornea, the aqueous humour escapes, the iris falls forward into contact with the cornea, and a small part of it is perhaps prolapsed through the ulcerated opening. The progress of the ulceration being stopped by the yielding of the inflammation, the prolapsed portion of the iris and the ulcerated part of the cornea are involved in one cicatrice. The opening in the cornea being thus closed, the aqueous humour again collects, and the anterior chamber is restored, though somewhat diminished in consequence of the partial adhesion between the iris and cornea. There is no prominent distention of the front of the eye in this case, because, as the inflammation subsides, the small protruded portion of the iris shrinks and flattens; but, if the destruction of the cornea has gone on further, either by ulceration or the giving way of an onyx, and considerably more of the iris has protruded, the prolapsed portion of the iris does not shrink when the inflammation begins to abate, as in the former case, but remains, and forms a projection at one part of the cornea, generally the lower or lateral. This projection is at first merely a bag of the iris distended by the aqueous humour, but by-and-by its surface becomes covered by an opaque firm tissue, of the nature of the tissue of cicatrices, and this tissue is incorporated at the base of the tumour with the sound cornea," which, as he further observes, "is not a distention of the cornea itself, but a protruded portion of the iris covered by a *new tissue*, intending to supply the loss of substance which the cornea has sustained. The mode of origin of a *total* staphyloma is essentially the same, but differs only in degree." "The whole or greater part of the cornea being destroyed, the iris falls forward, the pupil becomes closed, and the aqueous humour being thus allowed to accumulate in the posterior chamber,

lamina, invested by a thin layer of conjunctival cells. From the posterior surface of this lamina delicate arched fibres pass backwards into the true cornea, to which is attributed the difficulty of separating this lamina from the cornea proper. B, Laminated cornea, or cornea proper, showing nuclei, some of which have the stellate appearance described by Kölliker. C, Posterior elastic lamina, or membrane of Demours or of Descemet, lined by a single layer of cells. This lamina can be separated from the cornea with the greatest facility. Its epithelial investment is very easy of demonstration.

the iris is kept distended in the form of a tumour on the front of the eye. Its surface gradually gets covered with an opaque cicatrice-like tissue, or pseudo-cornea, which assumes a greater or less degree of thickness, and a total staphyloma is the result."

The more recent investigations of Mr. Bowman confirm the above explanation of Mr. Jones, and he has given a description of the structure that occupied the place of the lost cornea, in the case of a little girl, from whose eye he removed a staphylomatous projection. "Its thickness was very unequal; its posterior surface, to which portions of the iris adhered, being irregularly pitted, or, as it were, worm-eaten; its anterior surface was formed by a thickish coating of epithelium, somewhat resembling cuticle, being composed of eight or ten layers of cells, the deep ones globular, the superficial ones scaly, and more like epidermic cells than those of the healthy cornea. There was no anterior elastic lamina, and no posterior elastic lamina. The entire remaining portion of the thickness of the staphyloma consisted of a dense and most irregular interweaving of white and yellow fibrous tissue, with imperfectly developed nuclei intermingled, and the meshes of the tissues large, unequal, and open on all sides." This account of the diseased structure is accompanied by a very correct illustration, but of a portion only of the staphyloma. As I have before observed, my object in this paper is to give a representation of *all* the structures forming the opaque projection (Fig. 1).

At the upper part of the figure the dense and thick layer of epithelial cells is seen, the lower cells being somewhat oval, the upper scaly, the whole resembling a vertical section of human cuticle. Beneath this layer is a dense fibro-areolated tissue, having nuclei intermingled. In all the preparations in my possession, the cuticular layer is very thick, which contrasts remarkably with the thin conjunctival layer attached to the anterior elastic lamina (A, Fig. 2) of the healthy cornea.

In all, likewise, both anterior and posterior elastic laminæ have disappeared.

When we consider the structure of the staphyloma represented in the above engraving, and bear in mind that numbers of the cases met with in surgical practice resemble it, we cannot be surprised at the frequent failure of local remedies to cure the disease.

Art. VIII.—*Compound Dislocation of the Carpus successfully treated.* By Dillon Kelly, M.R.C.S.L., Medical Officer, Milltownpass Dispensary.

Compound dislocation of the carpus is an accident of such rare occurrence, that some surgeons in most extensive practice, even in large cities, have never seen a case of it; yet it has been my lot to have witnessed here two examples of that grave lesion within a few years, both, of course, the consequence of direct violence.

The first was produced by the unfortunate subject of it slipping off a putty-tray placed on the margin of a square aperture in the centre of a scaffolding fully forty feet high, through which the materials for a ceiling were hauled up by pulleys, his wrist in his descent coming in contact with the chine of a roman-cement vessel unfortunately directly beneath. This case terminated in lock-jaw within a fortnight, as the infatuated wife of the man would not permit him to consent to amputation till too late.

The second is the subject of this notice. J. Reilly, aged about 30, servant to a respectable farmer living at the lake, and in the immediate vicinity of the Longford and Cavan Railway, was leading a young horse on March 16, 1857, under a loaded cart, when the locomotive of the 1 o'clock down train suddenly blew its shrill whistle as it emerged from a deep cutting, quite close to where the animal was at work. Becoming excessively frightened, the horse plunged violently, and made an attempt to run away, but was held in by the driver, who most foolishly placed his right hand on the tip of the shaft for the purpose of giving himself an increase of power; but the animal, still continuing its efforts to break off, rushed with him towards the gate of the field, from which having swerved him by a sudden pull of his head towards the wall on one side, the back of that elbow was forced against it with much violence before he succeeded in pulling him up.

The excitement and efforts made by him prevented him from feeling any pain at the moment of the occurrence, but directly he removed his hand from the point of the shaft, it at once fell powerless by his side, and on looking at it he became faint, as he saw that both bones were protruding through the skin.

He was brought to me about an hour after the accident, when I found he had suffered compound dislocation of the carpal extremities of the radius and ulna forwards, the styloid process of the former bone resting in the angular crease form-

ing the commencement of the palmar fold circumscribing the root of the thumb. Having obtained two stout men, I had extension and counter-extension made by them for fully five minutes, without producing the slightest effect on the dislocation. I then fastened a silk handkerchief with the clove hitch round the metacarpus and above the thumb, the hitch resting on the palm, thus giving an increase of hold, and, consequently, power, to the person pulling by the hand, at the same time that by slightly bending the hand backwards it facilitated the return of the protruded articulation through the tear in the integuments. After about two minutes' steady traction and pressure with my thumbs on the protrusion, I got them partially reduced, the only obstacle then being the distal fold of skin and integument, which was firmly pressed down beneath the styloid process of the ulna, and apparently into the articulation. Still keeping up the extension, I bent the hand a little further backwards, insinuated a director beneath the integument, slid it between it and the styloid process, gradually carried it across the naked articulation, and at length succeeded, by a delicate and careful manipulation, in coaxing out the imprisoned portion, and perfectly reducing the dislocation, without having to dilate the opening, which in the commencement I feared much I should be obliged to do.

I then had an opportunity of examining the wound, which was slightly oblique, its inner termination being most distant from the carpus; it extended across the anterior aspect of the wrist, and occupied through some of its course the nearer carpal crease, marking the upper margin of the annular ligament, and gaped considerably. Next I brought its lips into close and perfect apposition by the twisted suture, making use of four needles of the smallest size (No. 11), placed a dossil of bloody lint on the wound, saturated it with oil of turpentine, interposed small folds of lint beneath the heads and points of the needles and the integument, and applied a single turn of a loose roller over all.

Finally, I placed the arm on a pistol-shaped splint, the bent end extending only so far as to coincide with the distal extremities of the metacarpals; and as I have for some time been accustomed to put up Colles' fracture in a peculiar manner, I allude to it here as I had recourse to the adjustment I make use of in such cases in this injury also, and, therefore, shall offer no apology for stating the reasons that first induced me to adopt it, and the source from which I derived the idea.

Finding it on one occasion, about ten years since, almost impossible to keep such a fracture in anything at all like a nor-

mal position, it occurred to me that the application of a deep pad placed over the flexors, on the same principle as that made use of in the adjustment of Dupuytren's splint to Pott's fracture, might meet the difficulty, I adopted the thought, put it to the test of experiment, and most fortunately succeeded in turning out a very creditable wrist from a very bad fracture of the radius, and complicated, I think, also, with partial dislocation of the os magnum. In this case, then, I covered the upper and inner two-thirds of the forearm with a deep pad of common wadding, placed a smaller pad in the palm of the hand, secured the splint to the forearm with a roller extending only to the margin of the pad, and the hand to its pistol-shaped extremity by another and narrower roller. By this arrangement the joint was kept perfectly immovable, and flexed slightly inwards, thus removing all strain from the sutures, at the same time that the lips of the wound were kept in the closest apposition. The lower third of the forearm was left bare, and its inner aspect in the immediate vicinity of the injury at least two inches distant from the splint, so that the state of the arm was continually apparent: no pressure of any sort was made on or near the wound; and, if necessary, the dressings might be removed without interfering in the slightest degree with the apparatus.

I then gave him a full grain of acetate of morphia, and sent him to the infirmary, as he lived at too great a distance from town to obtain the necessary attendance and strict and almost constant surveillance which so grave and fearful an injury so imperatively demanded; and I also wished to give him the advantage of the great experience which the County Hospital affords Dr. Ferguson of treating, and so successfully too, every possible form of surgical injury.

Through his kindness I saw the patient when I chose, and to his judicious after-treatment, which consisted in anodynes to allay pain and irritation, perfect rest of the joint, and strictly antiphlogistic regimen, the happy and almost unlooked-for termination of the case is to be mainly attributed.

On the fourth day the needles were removed, and the wound was found perfectly united, one minute portion alone excepted, which healed kindly in a couple of days. On the eighth day a tendency to inflammatory action just showed itself, but it promptly yielded to strict regimen, rest, and aperients; and on, I think, the thirty-fifth day from the date of the accident, he was discharged cured.

His wrist was then surrounded with a broad strip of chamois leather, spread over with the mercurial ammoniacum plaster, his arm still supported in a sling, and his fingers

bandaged over a ball in his palm for a few hours every day, as they remained stiff and straight, and he became impatient at not being able to resume labour directly he left the infirmary.

Under that treatment their stiffness gradually disappeared, and he obtained almost as perfect power over all their motions as he possessed even before the occurrence of the accident.

In June he again complained of an increase of stiffness and swelling in the wrist, with slight return of the stiffness in his fingers, the middle one more especially; and on removing the mercurial plaster a small abscess was discovered in the process of formation, nearly over the site of the lower margin of the pronator quadratus, to which a poultice was applied, and the arm again put in a sling, as he had dispensed with it for some time previously. In July the abscess burst, when it was apparent its origin was necrotic; but I should have said he was again leading the horse that had caused the injury for some time before that period, and still continued to do so.

In the latter end of July the swelling increased slightly, yet the power of flexing his fingers and their power of grasping was steadily becoming more developed every day, so that then he could hold the handle of a whip tightly, but not for any great length of time together.

In August the poultice was discontinued, and a bandage applied in its stead, which he continued to use until Christmas; immediately after which two small exfoliations, each about the size of a tooth (his own expression), but which I did not see, came away, a few days' interval only being between each; and immediately after the coming away of the latter the running ceased, the wound healed, and the strength of the joint perceptibly improved.

When I last saw him, on the 10th May, he was in the act of ploughing, had the most perfect use of his fingers, both as to flexion and extension, could also rotate that arm freely and fully, performing both pronation and supination without the slightest inconvenience. But the actions of flexion, extension, and the lateral motions of adduction and abduction at the wrist were limited to about one-eighth of their normal range, at the same time that he said they were decidedly on the increase; and, no matter how powerful the efforts he made to produce any of these motions, they were totally unproductive of jar or pain of any sort whatsoever.

The carpal extremity of the forearm was slightly thickened in its antero-posterior diameter, but not to a greater degree than if produced by a mild attack of articular rheumatism; in fact, not

to the extent of deformity, but no thickening or crowding of the joint proper to even the slightest amount was at all apparent. The cicatrix of the wound was only indicated by a white line; whilst that of the necrosis—which is longitudinal and at right angles with the other, the inner half of which it has drawn considerably downwards, thus rendering that portion of it much more oblique than after the accident—presents a hard, irregular, ridge-like fold of integument, most pronounced inferiorly, overhanging a deeply drawn-in, puckered line, evidently adherent to the radius, but free from pain or soreness on either pressure or motion.

This case, which has terminated so favourably, presented in the beginning a most unpromising aspect indeed. The sickening appearance of the bared articulation, the large extent and gaping character of the wound, and the pallid, despondING, and yet irritable patient, all combined at once in giving rise to the most unfavourable anticipations.

The extent and character of the wound, too, made it quite apparent, *ab initio*, that some sort of suture was imperatively necessary, both to keep its lips in perfect apposition, and hermetically seal up the opened joint. Having for a very long period been accustomed to have recourse to the twisted suture in every wound of large size, no matter where situated, or how lacerated or torn its margins might have been, and, therefore, having much confidence in it, I determined to make use of it in this instance, in preference to the interrupted, and for the following reasons:—

In the first place, it is perfectly impossible to keep the lips of any wound of great extent in a state of perfect apposition by the interrupted suture, they gaping invariably between each stitch, and admitting of too much motion in them, unless some appliance, on the principle of Mr. Colles's Indian-rubber bar, or some similar arrangement, were adopted. Again, the material, either silk or thread, becomes by absorption daily larger and larger, thus adding to the irritation and increasing the swelling, so that during the whole period of their continuance they are acting the parts of setons, and most effective ones too although in miniature. And, thirdly, their removal is often followed by a re-opening of the wound, an occurrence almost to be anticipated from the process of cutting and pulling them away. In the twisted, however, we have quite a different agent to depend on, namely, a thin, smooth, firm, and unyielding medium, incapable of absorption, or increase of size, and productive of scarcely any additional irritation, if removed on the third day. Then, the needles, which should be of the smallest size, keep the lips of

the wound in the most perfect state of apposition, preserving accurately the level of their surfaces, and preventing any portion of it from gaping or standing higher than the other. Again, by their immobility they give stability and firmness to its whole tract, and, when removed, leave the sutures proper, and superposed lint in situ and adherent, and thus acting the part of adhesive plaster in still keeping its lips in the most perfect state of contact, until union is firmly and completely established. And, finally, their removal, when done with due caution, namely, twisting each needle round two or three times, will be sufficient to loosen them so effectually that they can be brought away without the slightest difficulty, making use, however, of a screwing rather than a directly pulling-out motion, in the process, and which, by the way, unless most clumsily performed, is not by any means so certain to disturb the union of the wound, or produce irritation, as the cutting and pulling away of the interrupted suture so decidedly is, no matter how carefully the manipulation may be conducted.

Art. IX.—*On Distortion of the Features in newly born Infants.* By George H. Kidd, M.D., F.R.C.S.I., Assistant Physician to the Coombe Lying-in Hospital[a].

There is a species of distortion of the features not unfrequently observed in newly born infants, concerning the true nature of which a question has arisen; and as three examples of this affection have fallen under my own notice, I wish to bring the subject before the Obstetric Society, to elicit some discussion in reference to it.

In the tenth volume of the first series of the Dublin Medical Journal, Dr. Evory Kennedy published a paper, entitled, "Observations on Cerebral and Spinal Apoplexy, Paralysis, and Convulsions of new-born Infants." Of the cases on which these observations are founded, one, at least, seems to me to be a well-marked example of this peculiar distortion. It is given by Dr. Kennedy, along with several others, under the head of "Paralysis of the Seventh Pair of Nerves;" and as his remarks illustrate one view of the subject, I shall quote the case and consider his observations thereon:—

"G. B. had a tedious labour, the head of the child remaining low in the pelvis for many hours. On birth, there was a considerable tumour observed on the scalp, and a sloughing

[a] Read at the meeting of the Obstetrical Society, December 24, 1858.

spot, the size of a shilling, on the left parietal bone. The delivery took place early on Sunday morning, and about three o'clock on Monday a remarkable alteration was observed in the appearance of the countenance. The angle of the mouth was drawn slightly to the right side, while the child remained quiet. On its crying, which it did almost without intermission, the whole face became distorted, the angle of the mouth being then drawn very much backwards and upwards to the right side; the ala nasi of the left side, not being so much expanded as that of the right, gave the nose a deformed appearance. The eye on the left side remained permanently open, although the one of the opposite side closed in sleeping and crying. The mouth but partly resumed the natural appearance on the child becoming quiet. The brow of the affected side was not corrugated. The child, in other respects healthy, was removed from the hospital in this state."

Three other cases are published by Dr. Kennedy under the same head, but their connexion with the subject now under consideration is not so intimate as that of the foregoing. The first is called "Paralysis of the Portio Dura of the Right Side and Third Nerve of the Left;" the next is, "Paralysis of the Portio Dura and Spinal Nerves of the Right Side;" and the third is, "Hemiplegia of *Left* Side, with Ptosis and Paralysis of the Portio Dura of the *Right* Side." In this last case, as well as in that which I have quoted, "we have," Dr. Kennedy says, "a good illustration of that form of paralysis of the motor nerves of the face which has so much occupied the attention of Bell, Magendie, and Mayo—the portio dura of the right side here being alone paralyzed, whilst that of the left remained unimpaired—the reverse of what occurred in the other."

The paralysis of the third nerve in two of these cases, and of the spinal nerves in the other, are features of great interest. In all the cases the head was subjected to great pressure in its passage through the pelvis; and though it is not stated that there was sloughing, there was more or less injury done to the scalp covering the parietal bone of the side *opposite* to that on which the paralysis of the portio dura occurred. The pathological cause of the affection, it is argued by Dr. Kennedy, is congestion of the vessels in the neighbourhood of the roots of the nerves affected.

The question that has arisen about these cases is, as to whether the distortion is really the result of paralysis, or of a spasmodic action of the muscles of the side to which the features are drawn. This question has been raised by Dr. M'Clintock in a paper published by him in the first number of the

new series of the Dublin Hospital Gazette, which is entitled, "Two Cases of Spasmodic Tic (?) in new-born Infants." The diagnosis in these cases, Dr. M'Clintock says, lay between paralysis and spasmodic tic—an affection so designated and first described by Dr. Marshal Hall. The symptoms presented by both of the cases were, he says, carefully weighed and considered at the time, and inclined him and two very competent witnesses, who saw them with him, to believe that they were not examples of ordinary facial paralysis.

Of the two cases, the first was that of a well-grown boy, still-born after a protracted labour, in which ergot of rye was used, but resuscitated by the use of the ordinary means. The next morning it presented the following appearances:—"Upon the occiput and posterior part of the right parietal bone was a tumour such as is commonly found after a tedious labour. On the *left* side of the head, and corresponding to the temporal ridge, was a superficial yellow slough, about an inch and a quarter in length, surrounded by an inflammatory margin. As long as the child was at rest, no change in the features or symmetry of the face was observable; both eyes opened and closed nearly alike; at least when in the former state, the lids of the right were, perhaps, a degree further apart than those of the left. When the facial muscles were called into action, great distortion resulted on the *left* side—the corner of the mouth and ala nasi being drawn up, and the eye tightly shut; at the same time, the right side of the face was not utterly blank and void of expression, as we see it in paralysis."

Local treatment was applied to the wound on the left side of the head, and it healed rapidly; and when the child ceased to be under observation, at the end of a fortnight, scarcely any difference existed in the two sides of the face.

The second case was very similar. The child was born after twenty-four hours' illness. "At the next visit," says Dr. M'Clintock, "the nurse called my attention to the child's face, which, on a first glance, seemed paralyzed on the *right* side; a more careful scrutiny, however, altered this opinion. During the quiescent state of the features, no difference was discernible between the right and left sides; but when the child laughed or cried, then the muscles of the *left* side were thrown into strong action, and considerable distortion ensued. From the close similarity in the symptoms with those of the former case, I was led, he says, to examine the child's head. A small gray slough, surrounded by inflammation, was discovered on the integument covering the *left* parietal bone, near its anterior inferior angle. The treatment employed was purely local, and

in the course of some days the facial muscles acted with undisturbed harmony."

In his remarks on these cases, Dr. M'Clintock argues that the partial want of animation on one side of the face was owing to the undue and preponderating action of the muscles belonging to the other half; and his reasons are, first, that the paralysis was on the opposite side to the injury, which it would not have been if it had resulted from any direct pressure on the seventh nerve; and, secondly, that the appearance of the apparently palsied side differed from that usually observed in paralysis; inasmuch as there was full command of the orbicular muscle of the eyelid, and that in crying, laughing, or smiling, this side did not present that blank, expressionless appearance which is so characteristic of paralysis. But in designating his cases "spasmodic tic," he does not wish to be considered as asserting, dogmatically, that the *right* name has been adopted.

Here, then, is a difference of opinion sufficiently marked to arrest attention—being no less than as to whether the distortion is due to over-action of the muscles of one side of the face, or to the absence of action from those of the other side. It is evident that important practical errors might arise from adopting either view, if mistaken.

I shall now read my notes of the cases that have come under my own observation, and then state my reasons for regarding them all as examples of paralysis, and not of spasmodic tic.

The first occurred in December, 1855, in the child of a woman who was delivered in the Coombe Hospital. It was her fifth pregnancy. Her first child was dead-born, having been extracted by instruments; her second pregnancy terminated in a miscarriage; her third and fourth went to the full time, and she gave birth without assistance to living children after tedious labours. In this, her fifth pregnancy, she had arrived at her full time. Her labour commenced with the discharge of the liquor amnii before she came into hospital. The first stage occupied fifty-seven hours, the second four hours and a half, terminating without instrumental aid, and the third twenty-five minutes. The woman manifested symptoms of fever on the fifth day, and it was only on the sixth day, when the child was taken from under her own care, that the distortion was observed. The appearances I noted at the time were as follows:—'When the child is at rest the right eye is widely open, and apparently more prominent than the left; the fold at the line of the insertion of the levator labii superioris alæque nasi of the right side is less prominent than on the left, and the mouth is straight.

'When asleep, both eyes are closed without any very apparent difference, but on close examination it is seen that the right is not as perfectly shut as the other.

'When crying, the right eye is open, the left screwed up; the right eyebrow smooth, the left wrinkled; the fold of the levater labii superioris on the right side obliterated, on the left side well marked. The mouth is much drawn towards the left side and rather downwards.

'As long as the mother had milk, she nursed the child, and made no complaint as to its ability to suck, and now, when the finger was placed in its mouth, it sucked vigorously, both buccinators working well.

'On examining the head, a small slough as large as a fourpenny was found at a point anterior and superior to the left parietal eminence.

'On the 25th of January, when the child was about six weeks old, the mother brought it back to the hospital for inspection, when there was no trace of the distortion, and there was a cicatrix at the seat of the slough.'

The next case occurred in the child of a woman who was delivered without assistance in the Coombe Hospital on 30th June, 1856, it being her first child. The child was born sixteen hours after the discharge of the liquor amnii; my note of its appearance is as follows:—'The child presents well-marked facial paralysis of the right side. When it cries, the mouth is drawn to the left side, the expression of the right being blank, and the eye partially open. When at rest, there is very little deformity.

'There is a large tumour on the posterior superior angle of the right parietal bone, but there is no abrasion of the surface of the scalp, or appearance of slough.'

It is important to observe that in this case there was no slough; and I may here also say that it is not unusual to meet cases in which sloughs form on parts of the head that come in contact with bony points of the pelvis, in which there is no paralysis.

The next case occurred in the child of a woman who was delivered in the Coombe Hospital on the 13th August last. It was her second child, her first having been born alive, after a tedious labour, but without assistance. Labour pains began early on 10th August, soon after which the waters were discharged. She came into hospital on the 11th, but it was only on the 13th, seventy-two hours after the membranes ruptured, that the os uteri was fully dilated.

The second stage occupied six and a half hours, the head

being obstructed in its passage through the brim, but, just as it had been determined to apply the forceps, the difficulty was overcome, and the child was born without assistance; the bones of the head being much overlapped.

On the third day after birth the distortion was observed: the right side of the face was blank and expressionless, the lines on the left strongly marked; the mouth was drawn slightly to the left side; the eyes were equally open.

A small slough, about the size of a fourpenny, and evidently very thin, was found on the *left* parietal bone, about midway between the eminence and the anterior superior angle. The next day the distortion was rather more marked, inasmuch as the eye of the expressionless side was more widely open than the other, giving the eyeball the appearance of being larger than that of the other side.

A slough as large as a shilling was now discovered on the occipital bone, just above the protuberance.

When the child cried, the mouth was much drawn to the left side, and downwards; the eye of the left side was tightly screwed up, and the lines on that side of the face were deeply marked, the right side being expressionless, the eye wide open, and the brow smooth.

The child could not suck till it was a week old, probably from not being able to close the lips round the nipple.

Poultices were applied to the sloughs; the child was kept warm, and fed with breast milk from a spoon.

The slough over the occipital bone separated in a few days, leaving the bone bare and even denuded of periosteum; the anterior slough did not separate till after the child left the hospital at the end of a fortnight.

At the end of a week from birth, the child could suck; and when leaving the hospital, though the wounds were not closed, the distortion had in a great measure disappeared.

Six weeks after the birth, the mother brought the child to the hospital to show it: the posterior wound was now completely cicatrized; the anterior one was covered with a scab; the bones of the head still overlapped; and there was no distortion whatever, either when the child cried, or was at rest. I have seen this child very lately again, when the overlapping of the bones had disappeared, but there was a marked depression or flattening of the left side of the head.

The conclusion at which I have myself arrived, from the consideration of these cases, is, that the distortion results from paralysis of the portio dura, because—

1st. The same distortion occurs in Evory Kennedy's cases,

associated with paralysis of the third and spinal nerves, and convulsive twitchings of the muscles not paralyzed.

2nd. Because they do not correspond to Marshall Hall's description of spasmodic tic. In it he says:—"The countenance is drawn to the *affected* side, and it is the eye of the *same* side which *cannot* be closed; it being distinguished by this circumstance from paralysis of the facial nerve." Now in all the cases, Dr. M'Clintock's as well as the others, as is well exhibited in a drawing of the last case I have detailed, the eye of the side to which the mouth was drawn could be tightly closed.

3rd. I think Dr. M'Clintock's objections to the distortion being from paralysis are not valid. The partial expression of the paralyzed side in his cases, and the full command of the orbicularis palpebrarum muscle may have arisen from the paralysis being but partial. With respect to the closing of the eye, there is a fertile source of error, as even in well-marked cases of paralysis the eye can be closed nearly completely, as in sleep, by the upper lid falling by its own weight, when the elevator muscle is relaxed. The fact noted in two of the cases of the eye of the blank side appearing larger than the other, is more important, as showing the inaction of the orbicular muscle of the eyelid. I may further observe, that there is no necessary connexion between the distortion and the slough of the scalp, though they are generally associated; and that the paralysis is most probably produced by the pressure, applied through the body of the child to the occipital bone, doing some injury to the base of the brain, thus accounting for the paralysis being on the side opposite to the slough, and for the affection of the seventh being sometimes associated with paralysis of the third of its own side, and of the spinal nerves of the opposite.

The consideration of the management of these cases does not form part of my present object; generally there is but little required. In Dr. M'Clintock's cases, and those that I have myself seen, the paralysis disappeared without any special treatment being directed to it; in Dr. Kennedy's, where the amount of injury done was greater, leeching and counter-irritation were found necessary.

Art. X.—*Lithotomy Simplified.* By Josiah Smyly, A. B., Surgeon to the Meath Hospital.

(*Continued from* vol. xxvi. p. 290.)

The patient whose case I reported in the last November Number of this Journal was again admitted into the Meath Hospital on the 2nd of November, complaining of the symptoms of stone in the bladder, and, on sounding, its existence there was clearly manifested. The stricture of the urethra being now dilated, a small lithotrite was introduced, and the stone was measured, and found to be one inch and a half in diameter. It seemed strange that a stone, so easy of detection, should have so long eluded our attempts. No doubt, this stone was formed at the same time as that extracted last August, yet both stones escaped detection, although the patient was under the care of other surgeons, and was frequently sounded by myself when washing out the bladder with tepid water, which I did every second day for about one month.

The questions now arose, should the stone be crushed; should the lateral section be made; or should we again resort to Allarton's median operation. The idea of crushing was at once given up, on account of the very irritable state of the bladder, its diminished capacity, its presumed sacculated condition, and its inflamed state, indicated by the admixture of purulent matter with the urine—in fact, there could not be a more unfavourable case for lithotrity than this.

The lateral operation of lithotomy was contemplated—first, on account of the large size of the stone; and secondly, under the apprehension that the prostate, which had sustained so much violence not twelve weeks ago, would now resent further violence; and that, if it was hardened and rendered unyielding by the former operation, it might take on an untoward and diffuse form of inflammation, spreading into the areolar membrane of the pelvis. On the other hand, it was urged that more violence would be inflicted on the prostate, and the areolar tissue of the pelvis, by the lateral incision. With regard to the question of the dilatability of the prostatic portion of the urethra, the success of the former operation induced me to try it, and I was prepared, should it prove unyielding, to introduce a large-sized lithotrite, break up the stone, and remove all the fragments in the one sitting.

The operation was performed on the 5th of November, exactly as the former one was, and in the presence of a large number of the surgeons of other hospitals in Dublin, who kindly favoured me with their presence, and with the assistance of my

colleagues. The extraction of the stone was tedious, as it was both large and rough, and it was necessary to give the prostate time to yield to the pressure. It was, however, extracted within a few minutes, by using a screwing movement, rotating the forceps on its axis. Some incrustations of phosphate of lime were broken off, which were extracted by small forceps, and some by washing out the bladder by means of a syringe.

It is unnecessary to give a daily report of the progress of the case: suffice it to say, that all went on favourably, and the wound healed in a fortnight's time after the operation, and the patient returned to his home on the fifteenth day.

December 23rd. This patient came to the hospital to show himself. He looks well, and is strong and fit for work. He experiences little or no annoyance from the bladder, or from the stricture, except that he has a slight burning feel in the urethra, at the seat of the incision. A large-sized metallic catheter was introduced, and the bladder washed out with tepid water. On making an accurate search, not the slightest indication of the presence even of a fragment of stone was given.

Remarks.—It is well worth the consideration of the practical surgeon how a stone may elude detection, though he may be morally certain of its existence. This very circumstance occurred to a surgeon of eminence. He told his patient he was convinced there was a stone in his bladder, but confessed he could not feel it. The patient consulted another surgeon, who struck the stone the moment the sound entered the bladder. The first surgeon ever afterwards sounded with similar success. It was evident the stone was held in a pouch, or grasped by the bladder, and so escaped detection at first.

It is to be regretted that after the first operation a more diligent exploration of the bladder was not made with a "searcher," and not to have trusted to examination with the finger only.

I pass over the danger to which the patient would have been exposed had I adopted the operation of crushing the stone, and leaving sharp fragments in an inflamed, contracted, and probably sacculated bladder, as rather connected with the subject of lithotrity, to observe on the facility with which the prostate admitted of being dilated, not only to admit the finger, guided by a long probe, but a lithotomy forceps, and to yield to the pressure used in extracting it, charged with a stone the smallest diameter of which was three-fourths of an inch.

In my humble opinion, I should think that the successful result of a second operation in the same individual tells more

in favour of Mr. Allarton's operation than if the operation was successfully performed in two different persons. The knowledge of the fact that the prostatic portion of the urethra is susceptible of dilatation may be made available in cases of small stones in children, and is most valuable: thus a stone measuring one-fourth of an inch may be drawn forward in a small instrument used in measuring the stone till it is arrested behind the bulb; an incision may then be made down upon the instrument, the stone picked out of it, the instrument closed and withdrawn. There is no comparison as to danger between this and the lateral operation.

By the median section, when the incision is confined to the median line, we escape—

1. The danger of hemorrhage.
2. The wound is not likely to bring on peritonitis.
3. Urinary infiltration cannot occur, as the ilio-vesical fascia is not cut.
4. The operation not being so severe, there is much less shock to the system.
5. There is less suppuration.
6. Therefore, less likelihood of hectic fever.
7. The wound does not become fistulous, as it sometimes does after the lateral operation.
8. There is no possibility of rectal fistula.

I very much prefer the immediate dilatation of the prostatic portion of the urethra, to the gradual dilatation of it by sponge-tents, or Arnott's fluid dilator, known as "Lithectacy." This process takes at least twenty-four hours for its accomplishment, and is attended with great distress to the patient; sleep is prevented, and great misery results from the constant dribbling of urine through the wound; more or less irritative fever sets in, and, to add to his wretchedness, the patient is kept in a state of anxiety, uncertain as to the result, and dreading the suffering which he justly anticipates from having instruments introduced, and a stone extracted, through inflamed parts. In a case I saw treated by "lithectacy," though the operative proceedings were successfully completed, yet the patient sank under the fever excited by his protracted sufferings.

The case I have now related, as also others on record, shows that the slow method of dilatation is not necessary, but that the prostate yields kindly to steady, gentle pressure. The anatomical structure of the prostate should teach us the same lesson, "composed, as it is, of glandular elements, each a collection of follicles loosely aggregated together, with elastic tissue interwoven among them, muscular fibres, and a close network of capillary vessels with numerous small veins."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Stricture of the Urethra: including an account of Perineal Abscess, Urinary Fistula, and Infiltration of Urine. By Samuel G. Wilmot, M. D., Fellow and Member of Council of Royal College of Surgeons of Ireland; Surgeon to and Lecturer on Surgery in Steevens' Hospital, &c. Dublin: Fannin and Co. 1858. Royal 12mo, pp. 223.

There is no scarcity of literature on Stricture of the Urethra and its consequences, yet there is room for the work before us. Mr. Wilmot has not written to elucidate any peculiar principle in pathology, or to praise any favourite method of treatment, or to advance any special argument in the controversial contests which have been and are so rife on urethral matters. Fully impressed with the importance of ascertaining those principles of diagnosis which are most worthy of confidence, and the methods of treatment which are most beneficial in their results, he has not cared to study effect or to assume the appearance of unusual learning. Dates, names, references, indexes, and catalogues, are given sparingly, while important symptoms and remedial measures are dwelt upon with admirable care. The work is comprehensive, yet clear; detailed, yet practical, and withal eminently truthful.

In the first chapter, which is the least tedious we ever read on the subject, our attention is drawn to the structure of the urethra, its delicacy, its complication, and its double function. John Hunter's view of the double function producing a predisposition to disease, is rebutted, but his prediction—if the word be not too strong—of the muscularity of the urethra, receives the commendation it deserves, now that Bauer, Hancock, and Kölliker have given the minute organic fibres a name, a configuration, and a locality. From the structure and the functions of the urethra we are led to a consideration

of its pathological conditions. In the estimation of the various diseased states which separately or together constitute "stricture," namely, spasm, inflammation, and organic deposit, there are some interesting remarks on the spasmodic contraction, *pure et simple*, of the muscles of the urethra. That such cases are extremely rare, there is little doubt. The question at issue being—is there sufficient ground for the assertion that they have really occurred? To prove that the constrictor urethræ, with or without the organic fibres, is subject to spasmodic contraction from irritation having its origin in the nervous centres, is a sufficiently difficult task. The attempt at disproof would be an undertaking equally arduous. We agree with the author, if indeed we are not even more fully persuaded than he is, that in such cases some eccentric irritation or morbid sensibility may usually be found in the urethral canal or its vicinity. If we consider the goodly train of agencies which may properly be considered as "eccentric" causes of spasm, such as irritation in any part of the intestinal canal, indulgence in wine and other alcoholic liquors, the presence of irritating salts in the urine, spermatorrhœa,—not to mention syphilis, gonorrhœa, gleet, and affections of the bladder and prostate gland,—we shall find few cases where "centric" irritation is the only explicable cause.

In the second chapter the situation and causes of organic stricture are treated. The vexed and fretted question of the precise locality of stricture is left to be fought out by *weekly* combatants; the weight of "pathological testimony," however, remarks the author, "goes to establish that the usual locality is immediately behind the bulb at its point of junction with the membranous part of the canal." Two causes assist, he observes, in determining this spot. First, it is, with the fossa navicularis, the commonest seat of gonorrhœal inflammation; and secondly, the voluntary muscles keep up the irritation when it is once established.

After a few remarks on the number of strictures, Hunter having seen a case in which there were six, Lallemand, seven, and others where eleven have occurred, considerable care is exhibited in showing that gonorrhœa, especially where it is followed by gleet, is the most fertile cause of stricture. The history of a stricture may be epitomised in the following words, gonorrhœa, gleet, stricture. We entirely agree with the author in the opinion that the grounds for assuming that injections are to blame for the accession of stricture, are too slender to challenge belief. Strumous, gouty, and other forms of urethritis are referred to; after which follows a very lucid account of the symptoms of stricture, which latter may be briefly enu-

merated as follows:—Increased frequency of micturition; slight discharge from the urethra, altered shape of the urethral stream, its caliber is diminished; micturition becomes very difficult; the stream may be reduced to the size of a thread, and the straining which accompanies it is often equal to that of a woman in labour—straining which is followed by important results, such as piles, prolapsus ani, hernia, and thickening of the coats of the bladder. The impediment offered to the introduction of a catheter is confirmatory and conclusive evidence of urethral constriction. If the stricture continues unrelieved, chronic inflammation of the bladder ensues, as indicated by its irritability, and by the presence of mucus and phosphates in the urine; the inflammation gradually extends to the kidneys, and death is preceded by scanty, fetid, perhaps bloody urine, low fever, and the coma of poisoned blood.

After reviewing the constitutional symptoms, and particularly the febrile conditions which are liable to occur in the progress of an organic stricture, Mr. Wilmot proceeds to elucidate the diagnosis of stricture. The pages devoted to this object, and, later, those which treat of the results of stricture, cannot be too highly praised. Indeed, the instruction which permeates every page of this book will amply repay a careful reading. We can only refer here to the phenomena alluded to in the discussion on the diagnosis of stricture: peculiar states of the bladder, such as a loss or an increase of its contractile power are attended with symptoms which strongly resemble those of stricture. Similar results are also liable to follow analogous conditions of the urethra. Next are considered the various impediments, excluding stricture in its various forms, which the catheter may meet in its progress to the bladder.

The third chapter gives a detailed account of the complications and pathological results of stricture. The causes and the kinds of spasm are discussed. Irritability *per se*, and in its relation to gout, are next referred to; with spermatorrhœa, and swelled, painful, and hypertrophied forms of prostatic disease. When calculus occurs in conjunction with stricture, the author looks upon stricture as the cause, and calculus as the effect. A stricture aggravates all the symptoms of stone, and adds new symptoms of its own. Occasionally the diagnosis of the presence of both is attended with some difficulty, because the two diseases reciprocally mask or modify the manifestation of their individual symptoms.

"The patient himself naturally ascribes the increase of pain and frequency of micturition—the result of the presence of the calcu-

lus—to an aggravation of the symptoms belonging to the stricture; and the surgeon is unable to arrive at a proper conclusion, since a satisfactory method of sounding cannot be adopted. Still, if a clear history of the case, and such an account of the symptoms be furnished as will afford good rational evidence regarding the calculus, there can, in general, be little doubt entertained as to the kind of complication that exists.

"In a case of this sort the cure of the stricture is, of course, an essential preliminary to the removal of the calculus."

Other complications of stricture are swelling and tenderness of the testes or epididymis, hydrocele, and great dilatation of the urethra behind the stricture.

Passing to the pathological states of the bladder which are produced by a narrow urethra, the author notices that unpleasant symptom, "irritability," which so frequently inaugurates a long train of evils, but which, perhaps, more than any of its successors, ravages the constitution by preventing sleep. The experienced surgeon well knows that his arch enemy is sleeplessness—an enemy to be conquered by every expedient of assault or stratagem. After a description of hypertrophy of the bladder, "concentric" and "eccentric," we find some very interesting remarks on the "sacculated" bladder.

"Where only a single pouch exists, this sometimes acquires a greater magnitude, forming a secondary reservoir which exceeds the dimensions of the bladder proper; it is often very thin, being composed of the mucous coat of the bladder, with areolar tissue and a few muscular fibres scattered over it.

"From the absence of a perfect muscular coat to this sac, it is unable to expel its contents effectually, while its position very often is such as to favour the entrance of urine into it from the bladder when the latter contracts; thus it is kept in a state of almost continual distention. A common situation which this large sac occupies is the space between the bladder and rectum, and here it may become the object of great surgical importance, since the surgeon can often, by plunging a trocar and canula into it, adopt the simplest, readiest, perhaps safest method of relieving a case of retention of urine.

"A sacculated condition of the bladder is not revealed by any marked symptom, but we may often infer the existence of a large cyst from the circumstance that after the individual has passed urine in the ordinary way, a considerable quantity more escapes on his placing himself in some peculiar position."

The mucous membrane of the bladder may be affected in various ways from the presence of a stricture in the urethra, namely, by inflammation, ulceration, ecchymosis, and phosphatic concretion.

The fourth chapter ushers in the treatment of stricture. The cure effected by graduated instrumentation the author considers to be a process of absorption rather than of dilatation. He has a leaning to elastic instruments, which will be little to the taste, perhaps, of many of our readers. We can assure them, however, that Mr. Wilmot is no headstrong advocate of any special instrument or instruments. All instruments and methods of treatment are very dispassionately judged, and their utility in appropriate cases readily allowed. This chapter deserves careful attention. The various precautions to be observed in the use of instruments are numerous and important. Particular notice is taken of Mr. Wakley's instruments, as well as of the fluid dilator of Mr. James Arnott. The operative methods of treatment by internal and external division are referred to in a later chapter.

The fifth chapter brings us to a carefully detailed account of the impediments to the cure of stricture on the principle of absorption: these are, spasm, irritability of the urethra, rigors, urethral hemorrhage, false passages, sympathetic testitis, and irritability of the bladder. Opium is strongly, and we think very properly, insisted upon for the treatment of spasm. Chloroform, the hip-bath, and the local sedative action of lunar caustic as recommended by Sir Benjamin Brodie, may also be resorted to.

We are greatly pleased with our author's observations on urethral hemorrhage. For ordinary hemorrhage it is well known that pressure on the perineum, with or without a catheter in the urethra, rest, and the application of cold, are sufficiently efficacious means. In the severer forms of hemorrhage, where the bladder becomes filled with blood, fluid or coagulated, the injection of cold water into the bladder, and the internal administration of gallic acid, are very successful. The directions, dangers, and modes of detection of false passages, are forcibly stated.

The treatment of unyielding stricture occupies the following chapter. The author here passes in review the various well-known methods of treatment by caustics, and internal and external urethrotomy. With Mr. Wilmot, as with the majority of surgeons, the treatment by caustics, namely, nitrate of silver as used by John Hunter and Sir Everard Home, and potassa fusa as used by Whately and Wade, meet with little favour. The evils, he remarks, which may follow their use are numerous—rigors, hemorrhage, urinary abscess, urinary infiltration, and retention of urine.

Mr. Wilmot condemns in general terms the internal divi-

sion of stricture. We wish he had been a little more emphatic in his disapproval of this method of treatment; and a little more emphatic in his approval of the treatment by external urethrotomy. The operation he refers to in this chapter, as performed by Sir Benjamin Brodie, is altogether unworthy of that great surgeon, whose views of stricture and its treatment are for the most part ingenious and, what is better, true. In the case referred to, Sir Benjamin Brodie made an incision into the perineum, and at the same time divided the stricture internally by means of an instrument modified from Mr. Stafford's internal urethrotome,—that unfortunate British representative of a mischievous progeny, to wit, the instruments of Leroy, Mercier, Tanchere, and Reybard.

The reader must not suppose from our remarks that the author is wanting in admiration for one of the most useful operations of the present day,—Mr. Syme's external urethrotomy. After allowing Mr. Syme to describe it in his own words, he remarks that—

"As an operation his method is perfect, and we have now sufficient evidence furnished by cases to satisfy the mind that the mortality resulting from it is extremely small; that we need not anticipate any unfavourable results beyond what are common to all cutting operations of the simplest kind; and that the event which was at one time chiefly feared, namely, hemorrhage, seldom occurs, at least to any alarming or troublesome extent, if the direction given by Mr. Syme in regard to the mode of making incisions be observed.

"But the great question, and the one which is the turning-point of the discussion upon the operation, is this—Does it give perfect immunity from a relapse, and is the argument (No. 4) [contraction of the cicatrix], which has been adduced against it, devoid of foundation? Full and extended statistics can alone furnish the reply, and these are still wanting. It is true we already possess a mass of statistical evidence gathered from many cases operated upon by Mr. Syme, and other surgeons throughout Great Britain, sufficient to bring conviction that the operation possesses the power comparatively of subduing the tendency to relapse; but in order to establish whether the cure be permanent in the strict sense, the patients operated upon should be kept under observation for a long time afterwards, but this is in most instances unattainable. It is easy to understand how the complete division of the stricture should effect the desired object temporarily, but that recontraction should eventually occur. The lips of the incision are made to heal by granulation, and the soft and yielding structure thus formed admits of being easily stretched; so that, if the use of the bougie be continued, the caliber of the canal may be preserved for some time. But let us suppose two years or more to elapse from the date of the operation, the use of instruments having been abandoned, how may the

case stand? The edges of the incision in the urethra, especially if the original adventitious deposit was extensive, may thicken after some time, and the newly formed membrane, though soft and yielding at first, may, after the lapse of several months, especially when it is no longer subjected to the distending force exercised by a bougie, contract and become indurated, which must of necessity diminish the caliber of the canal."

Let us reflect for a moment on the supposed liability of a urethra to recontract after the operation of external urethrotomy; for the hypothesis of recontraction is the kernel of the question. We need scarcely say that the objection of "hemorrhage and pyemia," as urged by a certain histrio, who has curiously disported himself of late on the surgical stage of a neighbouring metropolis, is illogical, absurd, and untrue. What, then, is the character of a cicatrix formed on a mucous surface? We should have judged *a priori*, from the analogy which structurally the mucous membrane bears to the skin, that a cicatrix of the former membrane would be depressed, and that what there is of contraction would be at the expense of the new tissues underneath, rather than of those at the sides. Such contraction, it is needless to say, must necessarily enlarge any canal in which it may seated. We have had ample opportunity of confirming this view by *a posteriori* evidence. In one case, where Syme's operation had been performed several years before death, which resulted from causes independent of the urinary organs, we found the urethra so depressed as to give to the portion of the urethra in which it was seated a caliber markedly larger than could be found in any other part of the canal. Let any surgeon examine the cicatrix left after the operation of lithotomy, where death has occurred some years after closure of the wound—he will find a depressed cicatrix, and an increased urethral caliber.

We have already indicated our high opinion of the later chapters in the work; and we cannot give them too great praise. We are unable to afford the detailed account of them which they deserve. The important questions of retention of urine, urinary abscess, fistula, and infiltration, are dealt with in a masterly manner.

The practical surgeon will find this book after his own heart. In every page the reader is impressed with a sense that he is listening to one who utters nothing but what he is practically familiar with, and has carefully reflected upon.

Compendium der Allgemeinen und Speciellen Heilquellenlehre. Von Dr. Josef Seegen, Docent der Heilquellenlehre an der Wiener Universität, und Brunnenarzt in Carlsbad. Vienna. 1858. Two vols., 8vo, pp. 292 and 363.

A Compendium of General and Special Balneology. By Dr. Joseph Seegen, Teacher of Balneology in the University of Vienna, and Physician to the Baths at Carlsbad.

Our Teutonic brethren are a long way in advance of us in availing themselves of the division of labour both in prosecuting and teaching science; and although such a system undoubtedly often leads to a laborious trifling with minor details, and to a neglect of that habit of broad generalization which is essential to the successful pursuit even of special branches of knowledge, yet in the important and necessary art of the colligation of facts, it brings with it at least the compensation of enabling science to utilize a vast amount of labour which would not be available for higher purposes. It is to this national characteristic of the German mind that we owe those numerous elaborate, and often gigantic, treatises, through which no one with a heart less stout than that of a reviewer has the courage to wade, and which too frequently are consigned to the honourable dust of the book-case, as imperishable monuments of an industry which no amount of drudgery can daunt, and no distracting ideas of mere utility divert

To such a category, however, we are glad to say the work before us does not belong. Written by one who is officially occupied in conveying instruction on the subject he has here engaged to illustrate, as well as in the enjoyment of the large field of observation with which his post at Carlsbad brings him in contact, Dr. Seegen has produced a treatise which, whilst it contains a detailed account of the physical and chemical properties, and geological sources, of the principal mineral springs of the Continent, possesses also the advantage of giving both to the student and physician such practical information on the physiological effects and therapeutic uses of their various waters as will render it a valuable adjunct to the library of either.

Dr. Seegen has divided his work into two parts: the first of which discusses the sources, nature, and therapeutic action of mineral waters in general; the second is devoted to the special consideration of the individual watering-places of Europe, both marine and inland; or rather, to those of Central Europe, the notices of those of Great Britain being confined to a very brief description

of *Brigthon* [*sic*], the Isle of Wight, Hastings, and Torquay; whilst the marine resorts of France receive almost equally laconic attention. But, *en revanche*, we are treated with most minute details about German, Polish, and Russian watering-places, with the large number of which we must confess to be unacquainted even by name: and, notwithstanding the value which his book possesses, we cannot help suspecting that Dr. Seegen has laboured under the disadvantage which generally attends extensive compilations of this kind—that of having derived his views of the therapeutic uses of the waters of many of the places which he describes, either from a comparison between their chemical composition and that of others whose action has been carefully studied, or from the still more fallacious information supplied by the popular report of the place itself.

But, putting aside this latter source of imperfection in balneological therapeutics in general, which the progress of exact investigation will in due time certainly rectify, we wish to say a word upon the important question, the resolution of which stands at the outset of all inquiries into the utility of the external application of mineral waters, of how far the physiological properties of a mineral spring depend upon its chemical constituents; and, if so, to what extent they do so? The researches of L. Lehmann, Beneke, Kletzinsky, and others, show that the skin is incapable of absorbing the fixed soluble elements of any water applied to it in the form of a bath. The latter observer added to various baths from two to eight ounces of ferrocyanide of potassium, sulphate of manganese, iodide of potassium, acetate of lead, and other substances, the smallest quantities of which can be detected with the greatest facility, and in not one case could he find a trace of the added substance in the urine. Immediately after the employment of a bath in which sulphate of manganese had been dissolved, no traces of that metal could be detected in the serum of a blister applied to the chest; small quantities of iodide and ferrocyanide of potassium, when retained for a short time in the mouth, however, were readily detected in the urine shortly after. These experiments seem to show that so far as the saline constituents of mineral waters are concerned, any influence which they may exert upon the system when administered by external application to the skin is quite independent of their absorption into the system. With respect to the gaseous constituents of mineral baths, the only two of any practical importance are carbonic acid and sulphuretted hydrogen; and although both of these are readily absorbed by the skin, yet as baths are generally employed warm, and these gases are easily expelled from solution

in water by heat, their practical importance as therapeutic agents, when exhibited in this form, becomes very small. Another fact which throws light upon this point deserves to be mentioned: there are many mineral springs, such as those of Plombières, Schlangenbad, Wildbad, Ragatz, and others, the utility of which as therapeutic agents is well established, but which are yet so destitute of any but the most ordinary constituents, and even those in very small quantity, that they can only be arranged in a chemical classification under the somewhat ambiguous head of "indifferent mineral waters."

There can, we think, be but little doubt that the principal effect produced by baths of all kinds upon the animal economy is that of stimulating the capillary circulation and peripheral nervous system, and, by so doing, furthering those processes of histogenesis and histolysis upon the activity of which perfect health depends. The most efficient agent in the determination of this result is an elevated temperature, and hence the greater therapeutic value of warm baths than of cold ones. The existence of certain gases also in solution, especially carbonic acid and sulphuretted hydrogen, probably exercises a special stimulant action upon the dermal tissues, whence they are carried into the circulation, and there produce secondary effects upon the system at large. Looking, then, at these facts, viz.—that we have in the stimulant effect of the temperature of most mineral baths upon the activity of tissue-metamorphosis a satisfactory explanation in itself of the therapeutic action of those waters; that many springs possess unquestionable therapeutic powers, which are entirely destitute of chemical elements sufficient to account for those powers; that variations in electrical relations may have much to do with the action of mineral baths, as indicated by the researches of Becquerel; and that factitious mineral baths are generally far inferior to those made from the natural waters;—looking at all these facts, we can have little doubt that a knowledge of the chemical composition of a mineral water gives us but a very slight clue to its probable therapeutic effects, at least as far as external administration is concerned. Indeed, with regard to chemical springs it may be stated that, whatever their chemical composition, they are never wholly destitute of some therapeutic activity, an activity which consists, as we have mentioned, rather in furthering those processes of decay and restoration of tissue which are incessantly going on throughout the animal economy, than in any special influence which they exercise upon any one or more of the different organs of the body. How far this action may extend to furthering or setting up the

process of resorption in pathological structures, such as tubercle, cancer, &c., we cannot at present be very clear; but it is a probability that is worth remembering in our treatment of patients labouring under these affections. But it is especially in the restoration of general nerve-power in those states of the system in which it is greatly depressed, that the utility of *thermic* baths is most evident—an effect at which we can hardly be astonished when we reflect upon the extended area of sensitive nerve filaments over which their influence is exerted. We are convinced that far less attention has been paid to this means of influencing the vital energies of the organism than it deserves: the beneficial effect produced by the cold douche upon acute paroxysms of mania, and the diminution of pyrexial disturbance which follows the employment of the warm bath in the early stages of many inflammatory affections, are indications of the great advantages which a more systematic application of those agents would offer in the development of rational medicine. For the attainment of speedy and decisive results, such as purgation, emesis, powerful stimulation, &c., the skin is a medium that avails us but little; but for slow and steady excitation of nerve-power, and for the augmentation of those processes of excretion, secretion, and metamorphosis of tissue in which the activity of life really consists, we hold it to be an invaluable vehicle.

Some one has facetiously defined the human body to be little more than a few pounds of carbon stirred up in two or three buckets of water; and the absolute indispensability of water to every process of animal life is so well known, even to the veriest tyro in physiology, that it is needless to insist upon it. The metamorphosis of tissue; the osmotic absorption of the elements of the food; the amount of blood circulating in the vascular system, and the consequent activity of the heart; the exhalation of vapour by the lungs and skin, and the effect upon the temperature of the body thereby produced: these, and a hundred other functions to which it is subservient, may well lead us to regard water as the great *primum mobile* of all forms of life. The physiological effects of water upon the organism may be produced in two ways: either by external application to the skin in the form of bath, or by internal administration through the mouth. And to determine the therapeutic value of each of these methods of application it is necessary that we should have very clear ideas as to what are their physiological effects. The experimental solution of this question is still in its infancy, notwithstanding the exact and admirable researches of those German physiologists to whom

we owe all that we know upon the subject. Much that has been already published requires to be confirmed, and still more has to be done in the way of original investigation, before we can congratulate ourselves on being in a position to appreciate the action of water, in all its forms, upon the animal system. What has been accomplished we will endeavour, very briefly, to lay before our readers, and in doing so we shall avail ourselves to a considerable extent of the latter portion of Dr. Seegen's first volume, which contains a very complete resumé of the subject.

By far the larger amount of water imbibed by the mouth passes off by the kidneys, and that at no long time after it has been drank. Falk found that of one and a half to two pints of water, taken whilst fasting, nearly the whole was eliminated by the kidneys within three hours. The question may be asked, does this increase in the water of the urinary excretion carry with it an augmented amount of solid excreta; i. e., is the effect of the water ingested by the mouth in increasing the metamorphosis of tissue in a direct ratio with its amount? The answer to this question is not quite certain. Most observers, more especially Becquerel, Winter, and L. Lehmann, agree in stating that the amount of the solid excreta in the urine after copious draughts of water increases with that of its watery element, but not *pari passu*. Böcker confirms these results, but Falk, and Bidder and Schmidt have arrived at an opposite conclusion, though upon somewhat imperfect data. Falk even attempts to show that in some cases the amount of solids in the urine diminishes as that of its water increases. But whilst the relation between the watery and solid elements of the urine may be considered as rather doubtful, the effects of the imbibition of a large quantity of water upon the solid elements of the urine themselves have been well ascertained. They are—

1. Increase of urea proportionate with the amount of water imbibed.
2. Increase of sulphates.
3. Slight increase of phosphates and chlorides.
4. Diminution of uric acid, the amount of uric acid being in an inverse ratio with that of the urea.

These results lead to the important inference, that the prime effect of the absorption of a large amount of water upon the organism is an increased activity of the process of oxidation, and, consequently, of the metamorphosis of tissue; and partly as a deduction from them, partly upon other grounds, Dr. Seegen draws attention to the therapeutic value of copious

draughts of water in the following, amongst other affections:—*All those diseases which are attended with the production of a large amount of uric acid*, either in the urine or elsewhere, especially acute phlegmasiæ, gout, and rheumatism: the generally received relation of uric acid to urea leading to the inference that in these diseases the oxidating process is either below par, or incompetent to perform the large additional amount of work thrown upon it: the action of water in thus furthering so necessary a process also gives us a rational explanation of the desire which nature has implanted in the system in febrile affections for large quantities of drink, as well as of the utility of protracted courses of mineral waters in many chronic affections which are accompanied by excessive development of uric acid in the system. *Affections attended with diminution of the biliary secretion, or formation of biliary calculi.* Bidder and Schmidt having shown that copious libations of water increase the amount and diminish the density of the bile; whilst Vanotti records a case of successful treatment of biliary calculus by the same means. *Cases of metallic blood-poisoning*, especially from mercury or lead, both of which metals are eliminated by the urine and sweat, and will consequently disappear the sooner from the system the more those excretions are promoted. In addition to augmenting the amount of the urinary and perspiratory excretions, Böcker found that the ingestion of a large quantity of water also increased the amount, but diminished the density of the fæcal and parotid secretions. Under the same circumstances Bidder and Schmidt found the elimination of watery vapour by the skin (insensible perspiration) and lungs to be unaffected.

So much for the physiological effects of, and therapeutic indications for the internal employment of water in general; for the special action and uses of the various kinds of mineral waters we cannot do better than refer our reader to Dr. Seegen's second volume, in which the subject is ably treated *in extenso*. The next important question to resolve is, what are the physiological effects of water in general, or of the special mineral waters in particular, when applied externally in the form of baths? To do this we must determine three points:—1st. The effect of baths upon the metamorphosis of tissue as indicated by the variation of the body in weight before and after them, and by the increase or decrease of the excretions. 2nd. Whether the skin absorbs any portion of the water of a bath? And 3rd. Whether it absorbs any of the matters thus presented to it in solution? The researches of Kletzinsky and L. Lehmann, to which we have drawn attention above, have determined the latter point in the negative as far as the ordinary saline ingredients

of water are concerned; the experiments of Orfila, Collard de Martiny, and others, however, seem to show that this rule does not hold good with gases in solution. With regard to the absorption of water by the skin, the opinions of observers are by no means unanimous. Lehmann and Kletzinsky hold that the skin is nearly as impermeable to water as it is to the matters dissolved in it. Valentin believes, on the other hand, that slight absorption takes place; and Berthold found that after a bath of one hour, the temperature of which was 35° Cent., his body increased 510 grains in weight, to which must be added the loss of weight by augmented perspiration. The general effects of baths (probably warm, though it is not so stated) are, according to Lehmann—

1st. Increased diuresis; the increase in the amount of urine being much larger after a bath of fresh than after one of salt water.

2nd. Increase of all the constituents of the urine except uric acid and colouring matters; in baths of sea water the increase is less than in those of fresh water, and the uric acid and phosphate of lime are both diminished.

3rd. Great diminution of the cutaneous secretion after a bath of fresh water, but great increase after one of salt water.

These statements must in the present state of our knowledge be received with much reservation. On the whole, they agree with what one would have expected on *a priori* grounds, as well as with the results obtained by the internal administration of water; but they differ considerably in some points from those of other observers, especially of Madden, Young, and Cruikshank. But even after allowing a due margin for errors of experiment, we cannot avoid the conclusion that water, *per se*, in the form of baths, exercises a considerable influence upon the organism, quite irrespective of any matters which may be dissolved in it. How much of this influence is owing to temperature, how much to density, and how much to dissolved gaseous elements, in the case of mineral waters, must be left to further observation; and we are convinced that the field thus opened up to investigation will yield a rich harvest, not only of reputation to those who may feel inclined to labour in it, but also of solid and permanent gain to the cause of rational therapeutics.

The remaining portion of Dr. Seegen's work is occupied in discussing the therapeutic action of the individual constituents of mineral waters, and contains much that is interesting both to the physiologist and the physician. In taking leave of him, we cannot do so without cordially recommending his work to

the perusal of our readers, especially to those whose professional avocations require them frequently to select for patients who are anxious to avail themselves of the watering-places of Germany from amongst the conflicting claims of those now fashionable resorts, and who may wish to ground their selection upon some more scientific reasons than those generally adopted for the purpose. We trust that in a second edition of his work Dr. Seegen will, if possible, enter more largely into the subject of British watering-places than he has done in this; and we should welcome it with the greater pleasure could we see in it some worthier contributions to our knowledge of the physiological action of water than exist at present from the many English physiologists, who are quite as competent to do their share of the task as their brethren on the other side of the German Ocean.

On Amputation by a Long and a Short Rectangular Flap. By Thomas P. Teale, F. L. S., F. R. C. S., Surgeon to the Leeds General Infirmary. Illustrated by Engravings. London: Churchill. 1858. 8vo, pp. 72.

Undoubtedly "there are few subjects in practical surgery on which opinion is more unsettled than on the best mode of performing amputation;" and naturally so, because in surgery, as in every other art, men's minds are biassed by what they have been accustomed to practise or to see practised by those who have educated them, or who are generally considered high authorities on the subject. This remark is exemplified in the case of the author himself. Influenced by the practice he witnessed in the school of the celebrated Lisfranc, he adopted, while as yet a novice in the art of operating, "the transfixion method by two lateral flaps." After the lapse of some time he abandoned this method for that of transfixion with an anterior and posterior flap, being induced to do so by "the example and strong recommendation of others." His adherence to this mode of operating did not, however, last long, having left it off "in favour of the circular incision," which he continued to practise until the middle of the year 1855, when he embraced the plan which it is the object of the present essay to expound.

If the operation were any other than amputation, we should be inclined to reproach the author with fickleness, and, perhaps, unsteadiness of purpose, for adopting within so short a period so many different methods of performing it. Amputation, however, is an operation about the exact method of performing

which a surgeon may well be excused for altering his opinion as the result either of experience or reflection.

In some operations the *exact* mode of performance is comparatively unimportant; not so with amputation, in which, if a useful and, to a certain extent, a sightly stump be not left, the individual must drag on a miserable existence for the rest of his life. Besides, how frequently is amputation undertaken, not for the purpose of removing a disease which affects the system, but solely for substituting a more useful limb than the original; and if, after subjecting the individual to the pain, danger, and other inconveniences inseparable from such an operation, the object be not satisfactorily gained, what mortification must the surgeon feel, and what disappointment the patient suffer! There is no doubt that the two ordinary methods of amputating, viz., the double circular and double flap, are both open to the objection that the cicatrix in general becomes adherent to the bone, so that pressure cannot be well made on the end of the stump. This event is undoubtedly more likely to occur from the circular than from the flap operation; but it is also very apt to result from the latter, unless especial care be taken to bring a good pad of muscle over the bone, and to guard against the retraction which goes on during the healing process. Sometimes, in spite of every precaution, the cicatrix will become adherent to the bone, or will be separated from it by so thin a layer of tissue, that the extremity of the stump cannot admit of much pressure being exercised upon it. To obviate so great a defect in the ultimate condition of stumps, is one of Mr. Teale's objects in adopting the method of amputating "by a long and a short rectangular flap." In his opinion the chief advantages of this mode of operating are:—

"1st. The avoidance of tension.

"2dly. The formation of a soft covering for the end of the bone consisting of parts free from large nerves.

"3dly. The non-disturbance of the plastic process, and the consequent placing of the large veins of the limb, as well as the smaller veins of the bone, in a condition the least likely to take up purulent matter and putrid blood or serosity.

"4thly. The favourable position of the incisions for allowing a free outlet for purulent and other discharges."

These, certainly, are great advantages, but let us see in what manner the author proposes to carry out the steps of the operation:—

"Supposing the amputation to take place at the lower part of the middle third of the thigh, a situation well suited for the adap-

tation of an artificial leg, the circumference of the limb is to be measured at the point where the bone is to be divided. Assuming this to be sixteen inches, the long flap is to have its length and breadth each equal to half the circumference, namely, eight inches. Two longitudinal lines of this extent are then traced on the limb, and are met at their lower points by a transverse line of the same length. The inner longitudinal line should be first traced in ink as near as practicable to the femoral vessels, without including them within the range of the long flap. The outer longitudinal line, which is somewhat posterior, is next marked, eight inches distant from the former, and parallel to it. These two lines are then joined by a transverse line of the same extent, which falls upon the upper border of the patella, or upon some lower portion of this bone. The short flap is indicated by a transverse line passing behind the thigh, the length of this flap being one-fourth that of the long one; or, assuming the circumference of the limb to be sixteen inches, and the length of the long flap eight inches, the length of the short flap is two inches.

"The operator begins by making the two lateral incisions of the long flap through the *integuments only.* The transverse incision of this flap, supposing it to run along the upper edge of the patella, is made by a free sweep of the knife through the skin and tendinous structures down to the femur. Should the lower transverse line of the flap fall across the middle or lower part of the patella, the transverse incision can extend through the skin only, which must be dissected up as far as the upper border of the patella, at which place the tendinous structures are to be cut direct to the thigh-bone. The flap is completed by cutting the fleshy structures from below upwards close to the bone. The posterior short flap, containing the large vessels and nerves, is made by *one sweep* of the knife down to the bone, the soft parts being afterwards separated from the bone close to the periosteum, as far upwards as the intended place of sawing."

There are two obvious advantages possessed by this method of performing amputation: one is, that the cicatrix cannot become adherent to the extremity of the bone; the other consists in the absence of large vessels and nerves in the flap which is made to cover the bone. It is difficult, however, to understand how the long and the short flap can be neatly coapted, seeing the great disparity which must exist between them as regards breadth and depth. If we were to judge from the plate given by Mr. Teale, we should certainly draw a different conclusion, but diagrams, no matter how well executed, seldom represent the true condition of a part after operation. Even in the one alluded to the author admits that "the length of the long flap is somewhat exaggerated."

The fact, however, that the stump has a covering of

muscle, free from the large vessels and nerves of the limb, is an immeasurable advantage, and is sufficient to justify surgeons in giving the method of amputation with a long and a short rectangular flap a fair trial. The author has performed this operation very often, and, altogether, it has been adopted 56 times:—In 13 cases, at the Leeds Infirmary, by Mr. Smith; in 27 cases by himself; in 14 by Mr. Samuel Hey; in 1 by Mr. Wheelhouse; and in 1 by Mr. T. P. Teale, Jun., in private practice. A table is given of the cases operated on from June, 1855, to June, 1858, in which the age, the nature of the disease, or accident, the part amputated, and the result, are given. With respect to amputation of the leg, the author gives the following description of the mode in which the flaps are to be formed:—

"If the circumference of the limb, at the point of section of the bone, is nine inches, the length and breadth of the long flap will be four and a half inches each. The outer longitudinal line of the long flap is first marked along the posterior edge of the fibula; the inner line, at a distance of four and a half inches from the former, and parallel to it, is next traced over the posterior edge of the tibia, and the two are joined below by a transverse line, four and a half inches in extent, passing in front of the ankle-joint. The short flap is then marked by a transverse line at one-fourth the length of the other.

"In operating, the two lateral incisions are traced merely through the skin, whilst the transverse one is carried through the skin and all the other structures down to the bones. The long flap is then dissected upwards, in doing which, the whole of the tissues situated in front of the tibia, interosseous membrane, and fibula, are to be separated *close* to the periosteum and membrane. We thereby avoid dividing again, towards the base of the flap, the anterior tibial vessels which had already been transversely divided at the lower end of the flap. The short flap is next made by a direct cut through all the structures down to the bones and interosseous membrane, from which parts they are to be separated upwards *close to the periosteum and membrane* as high as the intended point of section of the bones."

Whether the method of amputating recommended by Mr. Teale will ever supplant the double circular and double flap operations, cannot be told until it has been more generally adopted, and the results closely observed; we repeat, however, that it possesses two advantages over the other methods, which are sufficient to induce surgeons to give it an impartial trial.

Illustrations of Difficult Parturition. By JOHN HALL DAVIS, M.D., &c. London: Churchill, 1858. Post 8vo, pp. 284.

"THESE illustrations," says the author in the preface, "are the results of clinical experience in difficult parturition, and, by way of introduction, I have stated the principles which have guided me in practice." The term "difficult parturition" is here used in its widest sense, and takes in cases of arm, foot, and breech presentations, where difficulty, howsoever caused, was met with in accomplishing delivery. As might be expected from the passage above quoted, the remarks on treatment are neither long nor varied. The clinical report, which must be considered as the principal feature of the book, contains one hundred and forty-four instructive histories, related in a clear, concise manner. With very few exceptions, however, these cases, regarded as difficult ones, present nothing peculiar, or differing from the general run of such labours met with by every accoucheur in extensive practice.

As the author's position and large experience entitle his opinions to respect, we shall see what his views are upon some disputed points of practice. Of chloroform, he observes that he does not often appeal to it in ordinary labour, and by no means in all obstetric operations. For the purpose of quieting muscular spasm, soothing the nervous system, and so relaxing rigidity of the genital passages, he has rarely found it to fail; "but it is in my opinion," he adds, "an agent of too great potency to be used without great caution." In this opinion we entirely and most heartily concur. Perhaps the most directly useful application of chloroform in midwifery is in cases of turning, under arm presentation, where the contraction of the uterus offers much resistance to the introduction of the hand.

"As regards the last agent, it certainly removes all suffering, and in most cases produces the necessary relaxation. I have known it fail, however, more than once in effecting that object, although the patient was reduced to perfect unconsciousness. Moreover, there are constitutions and conditions of the thoracic organs, in which it cannot be safely administered; and in some instances it has appeared to have predisposed to hemorrhage after delivery. The uterus has been left in a state of inertia; considerable trouble and anxiety have been occasioned, although the patients, in the end, did well."

After a pretty large experience in the use of chloroform in midwifery, we entertain little doubt that its full administration predisposes, as Dr. Davis has observed, to the occurrence of

post-partum hemorrhage; and in actual practice this probable effect of the agent should have its due weight with us, when deliberating upon the propriety of its employment.

The late Dr. Hamilton and Dr. Meigs have recommended (the latter in very strong terms) the use of the forceps where unusual delay occurs in the passage of the breech through the pelvis. But the author regards this as "a most dangerous proceeding;" and our own opinion is, that it is a most needless one. As regards applying it to the head in this class of labours, he is certainly correct in saying that "the excellent purchase which we can obtain by the dexterous use of the fingers is quite equal in efficiency to that of the forceps, as well as more safe." His remarks upon these two points are supported by the teaching of our highest authorities. As a general rule, he considers that, *cæteris paribus*, delivery by the forceps is a more dangerous operation to the mother than delivery by craniotomy; and hence he lays it down as a fundamental precept, that the former should never be resorted to for the delivery of dead children. But few dissentients, we believe, will be found to this doctrine.

A great deal has been written of late years in favour of the "long forceps," and it may therefore be interesting to know the opinion of so experienced a practitioner as Dr. Davis, whose opinion, too, upon this point is unprejudiced and sincere.

"The long forceps are very rarely indicated, since, on account of their application beyond reach of easy observation, they require still greater care and dexterity in their adjustment and use than do the short forceps. Indeed, so much injury has resulted from their employment, that certain authorities, with a considerable show of justice, consider them most dangerous instruments. It may with truth be observed, that, as a rule, when the head is arrested at the upper strait, the difficulty is of that degree which can only be overcome by the safer operation of craniotomy. Nevertheless, cases do, though very rarely, fall under our notice justifying a cautious trial of the long forceps."

For ourselves we feel bound to confess, that with increasing experience we feel more and more diffidence in resorting to the employment of the forceps where the head is arrested at the pelvic brim; at the same time we would be sorry to lay down any maxim positively prohibiting its use under these circumstances. We observe that Dr. Davis gives a preference in all cases to the double-curved forceps. The advantage of this second, or pelvic curve, is another point on which opinions are much divided. We have never used any other than the straight

forceps on all occasions, whether the head be high or low in the pelvic cavity so that we are not competent, perhaps, to pronounce an opinion upon this question; but certainly, we never in any case felt the want of this second curve (the *curvatura nova* of Mulder); and in our estimation such a curve must be a serious disadvantage unless the blades be kept strictly at the sides of the pelvis; but there are few cases of delivery where this can be done throughout the entire operation, except in those cases where the head is already at the outlet of the pelvis, and where, consequently, the shape or conformation of the forceps is of the least importance.

Amongst the cases recorded in the volume before us are many that are interesting, and some that are novel. Case XXXIII. is described as one "*of retroversion of the uterus at full term.*" The fundus and body of the uterus, we are told, were located, at the time of labour, in the hollow of the sacrum! Such a condition of things, we really thought, could have had no existence except in Deventer's plates illustrating "partus difficilis ex utero obliquato."

Two cases are related, where, after perforation and extensive reduction of the head (the pelvis being deep and much contracted), the delivery was completed by turning the child. This practice we regard as one of very questionable propriety; though far less so than the practice of turning the child, as early as possible, *in all cases of natural labour*, which has been recently introduced to the notice, and recommended for the adoption, of the British medical public; and yet, after all, is not this practice consistent with the doctrine, that the danger to mother and child from parturition depends in great measure on the duration of labour; a doctrine laid down by Dr. Simpson, and employed by him for the solution of practical questions[a]?

Dr. Davis relates a case of obstructed labour from obliterated os uteri, the woman being only seven months advanced in her first pregnancy. The pressure of the finger was sufficient to lacerate the thin abnormal structure, and produce an os uteri, which gradually enlarged with each recurring pain. The history of the case would seem to indicate that this closure of the os uteri took place subsequently to conception, and in consequence of syphilitic inflammation of the part. Such appears to have been Dr. Davis' opinion, but, though highly probable, we yet cannot regard it as resting on unquestionable evidence.

[a] In the Medical Times and Gazette for 30th October, under the heading, "To Correspondents," we are informed that Dr. Figg's paper, above alluded to, was forwarded for publication by Dr. Simpson. What inference are we to draw from this?

Cyclus Organisch Verbundener Lehrbücher sämmtlicher medicinischen Wissenshaften, bearbeitet von einem vereine deutscher Specialisten. Herausgegeben von Dr. C. H. Schauenburgh. IV. Band. *Schauenburg Ophthalmiatrik.* Lahr: Schauenburgh & Co. 1858. 8vo, pp. 277.

Cyclus of the Medical Sciences. Edited by Dr. Schauenburgh. Vol. IV. *Schaneuburgh's Ophthalmic Medicine.*

Ophthalmic medicine has within the last few years made rapid progress. Von Graefe and Arlt, Bowman and Dickson, Desmarres and Helmholz, to say nothing of our Irish ophthalmologists, have each contributed their quota to its advancement.

In a former edition of the work we are now noticing, the author has condensed the opinions and modes of treatment adopted by most of the principal European ophthalmologists; and although it contains a considerable amount of information, yet the greater part of it is very superficially sketched, and it is evidently intended more as a handbook for students than a standard work on ophthalmic medicine.

The want of a work on diseases of the eye, containing the various improvements recently acquired by this branch of medical science, must have been, no doubt, felt by the student and medical practitioner. The author has remedied this want to a certain extent in the work which he has laid before us, in which are contained most of the opinions at present in vogue among continental ophthalmologists, as well as some of the more important modifications and improvements suggested by our own countrymen. The various inflammatory affections of the conjunctiva: catarrhal, phlyctenular, trachomatic, and diphtheritic conjunctivitis, are fully entered into; and the modes of treatment recommended by the several eminent ophthalmic surgeons described and commented on. With regard to lymphatic or phlyctenular conjunctivitis, called by Arlt scrofulous, we coincide with the author, that the blowing of alcoholized calomel into the eye—a practice which is frequently had recourse to at some of the continental schools—is rarely attended with favourable results; we have, however, seen calomel, without any alcohol, employed in the same manner in the treatment of this affection, and it was, in almost all cases, of the greatest efficacy in arresting the progress of the disease. The only contra-indication to its employment is the presence of pus in the vesicles, as in this case the disease is decidedly aggravated by it.

The distinguishing marks between trachoma, diphtheritic conjunctivitis, and blennorrhœa, are minutely detailed; the adoption of Arlt's assumption, that *keratitis pannosa* is merely a part of the trachomatic process, arising from the same cause as that which has produced the disease in the palpebral portion of the conjunctiva, we do not wholly coincide in; because we think that, as the disease originates in a different tissue, the irritation caused by the exudation deposited there may partly contribute to the proximate cause of the keratitis, although the constitutional taint may be the predisposing one; and this we think the more necessary to point out, because it gives, to a certain extent, more decided indications to the local treatment of the affection We entirely agree, however, that the original cause of the disease is attributable to a scrofulous or perhaps a phthisical state of the constitution; whilst, on the other hand, we must confess our ignorance of a distinct trachomatic diathesis.

Diphtheritic inflammation, its various stages and treatment, as laid down by von Graefe, are dwelt on at considerable length by the author, and the disastrous results of the employment of nitrate of silver pointed out. In fact, until a very recent period, this disease was mistaken by numbers of medical men for blennorrhœa, and a totally opposite treatment employed to that which was required. The author agrees with von Graefe, that children of a syphilitic or scrofulous diathesis are predisposed to the disease, whilst healthy subjects are, comparatively speaking, exempt from it.

In alluding to the treatment of *pannus* by inoculation, the author seems to have forgotten that peculiar states of the constitution contra-indicate its employment. We once witnessed a case under a famous German oculist, in which the diphtheritic process supervened a few hours after the inoculation, and the whole cornea was destroyed by sloughing; the patient having previously suffered severely from syphilis and the effects of mercury.

The operation suggested by Nüssbaum for the relief of complete opacity of the cornea, when the sensibility of the retina remains unimpaired, viz., that of excising a small portion of the central part of the cornea, and fitting in a piece of glass, seems to us to be altogether impracticable, as far as the human eye is concerned. During a short residence at Munich, Dr. Nüssbaum showed us rabbits on which he had performed this operation six months previously, and the cornea had completely healed around the glass, with but very slight opacity. This, however, does not prove that the human eye can be

handled with the same impunity. We had recently an opportunity of seeing this operation performed on the patient in a case of opacity of the cornea, and at the end of the fifth day the cornea suppurated and the glass fell out, so that the eye was in a much worse state after the operation than before it. Although we give Dr. Nüssbaum every credit for the ingenuity displayed in the suggestion of this operation, still we cannot but coincide with the author in thinking that it will never benefit ophthalmic surgery in the slightest degree.

Of the different remedies suggested for the improvement of vision in keratoconus, viz., breaking up the lens, excision of a portion of the cornea, myotic glasses, compression, and cauterization—none of them seems to us so rational as that recommended and practised by Mr. Bowman. That eminent oculist excises a small portion of the iris, and converts the pupil into a narrow slit, so that a portion of the mass of light becomes normally refracted, and the confused vision is to a certain extent obviated. A somewhat similar operation was performed by Mr. Walker, but as he only cites one case in which he employed it, it is to be presumed that it did not meet with much success in his hands.

Among the remedies enumerated for promoting the absorption of pus in the anterior chamber of the eye, *Polygala senega* is lauded by the author. This is a favourite remedy in Germany, and indeed is mentioned in some books as a specific in the above case. We have seen it frequently employed in the form of an infusion, and also given in pills, as recommended by Dr. Schmalz, yet we never knew it to have the slightest effect in arresting the progress of the disease; we are consequently at a loss how to account for the great praise that has been given to it. Up to a recent period it was believed among medical men that without calomel, leeches, &c., it was impossible to cure iritis. Von Graefe has taught us, however, that atropia dropped five or six times a day into the eye, in slight cases, immediately arrests the ciliar neurose, and very soon after, the inflammation. When the disease is severe, of course this remedy would be insufficient; he then employs paracentesis of the cornea, calomel, and leeches, and not until the fourth or fifth day, when the symptoms commence to abate, does he employ atropia, which he then drops thirty or forty times a day into the eye. This treatment we have frequently witnessed, and we have never seen it followed by posterior synechia, which is one of the most frequent causes of relapse in this disease.

The employment of turpentine in syphilitic iritis, as re-

commended by Mr. Hugh Carmichael, is, we think, worthy of being mentioned by the author, as he proposes to give a comprehensive sketch of the mode of treatment recommended by English as well as foreign surgeons.

The protracted employment of atropia for the removal of posterior synechia is, in our opinion, preferable, and perhaps as effectual, as tearing through the adhesions with an instrument; because the latter frequently induces intense inflammation, and occasionally opacity of the lens and its capsule. It is well known that, sometimes, when the atropia has been employed for months with but slight improvement to vision, a sensation, as of something tearing, is felt in the eye, and the patient immediately after distinguishes objects clearly, which were previously almost invisible to him. We should, consequently, be inclined to give the atropia a trial before having recourse to the operation; in no case, however, would we allow the synechia to remain, because it is frequently the cause of ciliar neurose, and, as above stated, of relapse of the inflammation.

With regard to the causes of the various forms of capsular cataract, it seems to be acknowledged by all parties at the present day, that they are seldom or ever the result of inflammation of the texture of the capsule itself; but are caused almost always by inflammation of the iris or of some other membrane. Posterior capsular cataract cannot, however, be accounted for in this manner, as it is almost always congenital, and generally accompanied by a greater or lesser degree of opacity of the lens. The experiment suggested by Purkinge and Sanson for the diagnosis of this and other affections of the lens and its capsule, is completely superseded by the ophthalmoscope, and seldom or ever employed at present in Germany, France, or England. Arlt's theory, that anterior capsular cataract is caused almost in every case by perforation of the cornea, is given by the author as the true cause of this disease; while both Frederick and Edward Jäger declare that they have rarely seen it produced in this manner, and that in the greater number of cases it is the result of iritis. As both theories have their advocates, it might perhaps have been advisable to have mentioned one as well as the other when describing the affection.

The different forms of lenticular cataract, the symptoms and appearances presented, subjective and objective, together with the various opinions relative to their cause, mode of development, &c., are minutely detailed. In fact this part of the work alone is sufficient to recommend it to the medical

public, as it contains a great amount of information in a pathological as well as in a therapeutic point of view. Retinal separation, with its various complications, which before the discovery of the ophthalmoscope were very imperfectly understood, are graphically sketched, and the causes and mode of occurrence explained.

An exceedingly interesting case by Dr. Liebreich, pointing out the value of the ophthalmoscope in the diagnosis of disease of the deep-seated tissues of the eye, is also cited. The author remarks, in speaking of this instrument, that it renders much more service, in various ways, to pathology and physiology, than the dissecting-knife, the microscope, or chemical analysis. For as diseases of the eye were seldom the cause of death, only dead eyes could be procured formerly for pathological examination, the diseases of which had long passed away, and only the completely degenerated and shrivelled up remains were left behind. Now, however, by means of ophthalmoscopic examination, the actual condition and progress of the diseased process can be observed with the greatest certainty. By means of this instrument, ophthalmic pathology has been essentially enriched, and other and rational questions are proposed with regard to therapeutics. We are decidedly of the author's opinion, and we think it is only necessary to suppose a somewhat similar case to that mentioned by Liebreich, viz., a case of chorioiditis, accompanied by exudation, causing commencing separation of the retina from the chorioidea, in order to enable one to form an opinion of the merits of the instrument. In this case, without ophthalmoscopic examination, it would be impossible to make a correct diagnosis, and consequently impossible to prescribe a proper form of treatment. Although it is not in our power to repair the mischief that has been already accomplished, yet we can almost to a certainty arrest the further progress of this disease, and prevent the patient from becoming completely amaurotic, which occurs in all cases where an appropriate treatment is not employed[a]. Glaucoma, and the operation suggested and performed by von Graefe for its cure, together with numerous extracts from

[a] We confess we are not astonished that this instrument should have been condemned as worthless—a mere *bagatelle*—by individual surgeons. We have known several of our *confrêres*, who, without the slightest preliminary knowledge of the principle on which the ophthalmoscope is employed, have thrown it aside, after a few fruitless attempts at using it, as, according to their opinion, there was nothing to be learned by it. Any person, however, who succeeded in obtaining a good view of the ground of the eye with it cannot but admit that it is one of the most valuable inventions of modern times; and it is only those who have failed in their attempts to use it who condemn it as worthless.

the works of this author on the subject, are detailed and commented on. As the efficacy of the operation has been acknowledged by most of the principal oculists in Europe, viz., Arlt, Hasner, Langenbeck, Desmarres, Sperino, Bowman, and others, comment from us would be superfluous.

The portion of this work which relates to optics contains most of the recent improvements in this science which bear on ophthalmology. The various kinds of microscopes, lenses, &c., with descriptions of the optometer and ophthalmoscope, and the various kinds of these instruments employed in practice, form altogether a mass of information not to be found in any other work on diseases of the eye. The author has, however, made, in our opinion, a rather important omission in not mentioning the "ophthalmometer;" an instrument invented by Helmholz, and employed by him, also by von Graefe, Jünge, and others, in measuring the curvings of the cornea in glaucoma and other diseased processes. For a description of this instrument we beg to refer the reader to the article on the subject published in the "Archiv für Ophthalmologie."

The section on operations on the eye is replete with information. We have seldom seen the different operations so thoroughly examined, and the defects and merits of each so clearly pointed out. In fact, each operation is described with a minuteness of detail that must render the work invaluable to the operating surgeon. We would consider this portion of the work complete, were it not that the author has omitted the operations suggested and practised by Mr. Bowman for the opening of the lachrymal sac and for the cure of eversion of the puncta. That they are improvements on the operations formerly practised, is admitted by the greater number of continental ophthalmic surgeons; and we ourselves have seen them frequently performed at several of the French and German schools of ophthalmology.

With regard to the employment of the actual cautery for the permanent cure of fistula lachrymalis, designated by the author "the more usual and effectual means of treating this affection," we must confess we are inclined to prefer the more tedious, and at the same time the less dangerous, treatment recommended by Arlt, viz., touching the parts with nitrate of silver, and applying water-dressing. The cautery has, it is true, the advantage of acting quickly, and of being in many cases effectual; but in our opinion the risk is far too great for us to countenance the indiscriminate employment of it.

In summing up the merits of Dr. Schauenburg's book, we cannot agree altogether with the critique of the Belgian re-

viewer, who considers it more adapted for those who have already a thorough knowledge of ophthalmology than for the tyro. We consider it peculiarly adapted for the young student, as well as for the medical practitioner, inasmuch as it sketches truly the present state of ophthalmic medicine, superficially in some parts, it is true, but comprehensively enough to give an excellent idea of the present state of this branch of medical science, both at home and abroad.

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1. *Observations on the Report of the Commissioners of Inquiry into Lunatic Asylums, &c. &c. (Ireland): in a Letter to the Right Hon. Lord Viscount Naas, M. P., Chief Secretary, &c. &c.* By J. Nugent, M. D., Inspector of Lunatic Asylums. Dublin: Alexander Thom and Sons. 1858. Folio, pp. 23.

2. *Resolutions of the Board of Governors of the Armagh District Lunatic Asylum, in reference to the Report of the Commissioners of Inquiry, Lunatic Asylums (Ireland); with Observations on said Report, in a Letter to the Governors of the above Asylum.* By Thomas Cuming, M. D., Visiting Physician. Armagh: J. M'Watters. 1858. Pamphlet, pp. 12.

The period of time which has elapsed since the Commission was issued, to which Dr. Nugent's "Letter" and the above pamphlet have reference, is so remote, that we doubt if our readers have not long since forgotten that it ever had an existence. At all events, of this we feel pretty certain, that the public generally require to be reminded of the peculiar circumstances under which this Royal Commission came into operation, and this we shall now chronicle, in the first instance, as shortly as possible, with the view of affording the best clue for an opinion being formed as to its intention and necessity.

But first we must premise our reasons for not reviewing the two Reports issued by the Commissioners themselves, as we promised our readers in a note to the Annual Review of Insanity in our last Number, should be done. When we made that promise, we were under the impression that the Commissioners would have had the courtesy to forward their Reports to our Journal for review, as had been hitherto done in all instances in which a Government Commission reported on matters connected with the medical profession, or the state of the public health in Ireland. But as this has not been done in the case of either the Reports of the Commissioners collectively, or that of the dissentient Commissioner who made a separate Report,

we must suppose that they consider their labours have been more than sufficiently reviewed in the Letter of Dr. Nugent, and, therefore, we shall take his observations as the text for any remarks we feel it our duty to make on this Commission and its results.

On the 15th of April, 1856, now nearly three years ago, a Bill was laid before the House of Commons, having, as its endorsers, Mr. Horsman and Mr. Attorney-General for Ireland, "to amend the laws relating to the Lunatic Asylums in Ireland," so far as the appointment of officers was in question, "doubts having arisen," as the preamble stated, "respecting the authority to make such appointments, which it was expedient to remove." But the provisions of this Bill were so exceedingly arbitrary, and such a storm of opposition was raised to it, that it was ultimately found expedient to have it withdrawn, and a more modified one, "Bill No. 2," introduced in its place, which proceeded so far in its progress as to pass its first and second readings and through Committee, during which, however, the Government was left in a minority on several important points, and so shorn of the powers endeavoured to be obtained, that sooner than submit to so decided a defeat, Mr. Horsman, at the eleventh hour, withdrew "Bill No. 2," stating, as a reason for such unceremonious conduct on his part, that the Government had determined to issue a Commission to inquire into the whole constitution of the Irish Asylums, and would not, accordingly, proceed further with their intended legislation.

Now it must strike the most ordinary observer, as a remarkably strange feature in this affair, that no necessity for a Commission had ever crossed the mind of Mr. Horsman or his employers, or been hinted at, however remotely, until the House of Commons had emasculated "Bill No. 2;" then only did it flash upon the mental vision of the Secretary for Ireland, that a Commission was absolutely requisite to aid the Government in concocting a measure for the due management of our Irish hospitals for the insane. But the real facts of the case lie in a nutshell. The Irish Government had put themselves into a decidedly false position as regarded the appointment of chaplains. Some of the local Boards strongly, but without effect, remonstrated against this; a suit at law was the consequence, the result of which was, that the Lord Lieutenant and Privy Council were declared by a solemn and unanimous decision of the Court of Queen's Bench to have exceeded the powers vested in them by the existing law, in the forcing of such appointments, and which, after such legal decision, of course fell to the ground. Recourse was then had to Parliament for new powers

to enable those objected-to officers being appointed; this signally failed also, and, in order to lessen the severity of the fall, a Commission (and nothing else would answer) was declared necessary to lay the foundation of a new attempt to foist by law a special class of officials upon every public asylum in Ireland, whether the local authorities pleased or not. The chaplains, then, were the *casus belli* throughout in this business, and the Commission was for no other purpose but to afford a further opportunity for effecting this pet object of the Irish Executive.

Having made these few preliminary remarks, we may next observe that, supposing a Royal Commission had been really called for, which we altogether deny, the constitution of the one with which we were favoured by Mr. Horsman was far from being calculated to obtain for it the confidence of the public, or secure for its deliberations, however long in being concocted, any weight or authority. Nominally this Royal Commission consisted of five members, but in reality but three working men were engaged upon it, two of the five being English officials, holding a very responsible and well-paid post themselves in London, which required all their time and attention to discharge its duties. And yet the two English Commissioners in question were the only men on it who were practically conversant with the important subject the Commission was appointed to make a Report upon,—the Irish portion thereof, however respectable individually and eminent in their own proper vocation, being *novi homines* in all matters relating to the insane, and the management of the establishments set apart for their treatment.

Dr. Nugent, in his Letter to Lord Naas, has very ably, and with much tact, reviewed the salient points of the Commissioners' Report. None was better qualified than himself to break a lance with these gentlemen, and certainly it must be admitted by every impartial person that he has most completely put the Commissioners, if not *hors de combat*, at least into a very false position, out of which they will find it a most difficult matter to extricate themselves. And first, we may observe that the question of the office of Visiting Physician being continued in the Asylums, is a rock upon which the Commissioners split, four being for the ceasing and determining of such appointments, and one only, namely, Dr. Corrigan, for the retention of that officer. For ourselves, we have so often and fully given expression to our views upon this subject, that we need not now go further into a vexed question of the kind than to remark, that we have seen nothing to alter those views, and which are simply that, if an extern professional ally to the Resident Superintendent Physician be deemed desirable, it should only be

as a consultant in purely medical cases. The general treatment of the patients, medical and moral,—so far as regards insanity, the disease for which they are consigned to what we will persist in terming an "Hospital for the Treatment of Mental Disease"—is one and indivisible, and should be in the hands of one officer, vested with paramount authority, and alone accountable to the Board of Governors and the Governmental authorities for his proceedings. This chief officer—the Superintendent-Physician—should also exercise an oversight in regard to the whole economy of the institution, all under its roof looking up to him as their head. Any other system of government in such peculiarly circumstanced institutions will be found to be seriously detrimental to their best interests and the public weal. The performance, however, of all civil functions by the above officer, the Commissioners are, as Dr. Nugent observes, strongly opposed to.

Another most important point, one which vitally affects the continued prosperity and status of our public hospitals for the insane in Ireland, is that relating to the authority in which is to be placed the appointment of the principal officers of those establishments. Hitherto, and up to the present time, they have been centred, and most wisely and properly, in the Lord Lieutenant, and that they should so continue, we have no hesitation in giving our emphatic opinion in the affirmative. But we would confine those appointments to that of the Physician-Superintendent and the Consulting Physician merely. The appointment of Matron, we think, should cease and merge into that of Housekeeper, the party filling which should be nominated by the Physician-Superintendent, and the appointment confirmed by the local Board of Governors. The Clerk, who acts also as Storekeeper, should be appointed in the same manner (as is the case at present in some of the asylums), as both these officials being secondary officers, this method of procedure would alone be the one that would work well, and insure harmonious action, and the due discipline and domestic comfort of the asylum in its hourly movements. Already, in a large County Asylum in England of the highest character in its conduct, has the precedent been made of doing away with the office of Matron, and substituting a new one in its place, with the more appropriate title of Housekeeper, a precedent which we hope to see generally followed on every favourable opportunity. Were the local Boards of Governors to be vested with the appointments of the chief officers, the prestige of the latter, and of the asylums themselves, would soon be lost, and both merge into the questionable rank of workhouse officials and workhouses.

By all means keep up, if not increase, the independence of the responsible officer, but do not lower it, as this step backwards would unquestionably be doing. It is just about one of the worst possible recommendations the Commissioners could have made. They admit too, themselves, that the preponderating evidence they had received on this point was against their recommendation, and yet they deliberately put this forward as a desirable change, without affording any substantial reason for doing so. Let it never be forgotten the arbitrary and justly condemned conduct, within a comparatively recent period, of the Visiting Justices of two County Asylums in England, who, having the appointment of the Superintendents in their hands, dismissed them without being able to show any just cause for so severe, so cruel, and unmerited a punishment.

The Commissioners, as if merely for the love of effecting changes, suggest that the mode of appointment of Governors should no longer be continued, namely, by the Lord Lieutenant and Privy Council of Ireland, but be partly, that is to say two-thirds, appointed by the Grand Juries, and one-third by the Government,—a proposal on their part which we quite agree with Dr. Nugent in averring is "not judicious," and in practice "would prove detrimental to the interests of the insane themselves."

That our district hospitals for the insane should be opened up, under proper restrictions, for the admission of medical students to become conversant with the general treatment and management of the patients, we have long advocated as a desideratum, and thus far agree fully with the Commissioners in their views on this head. It appears by Dr. Nugent's letter that the Commissioners recommend that a Central Board should be constituted for the erection, government, direction, and general supervision of the asylums, and that such should consist of two physicians and a lawyer. From this recommendation we altogether dissent, and consider it to be another instance of that meddlesome legislation which will upset an established and well-understood system in this country, in regard to asylum management and control,—the supreme power being vested, as at present, in the Executive, and not in any exacting and despotic triumvirate sitting in their easy chairs in Dublin Castle, and exercising an authority which would be anything but for the comfort and well-doing of our institutions for the insane in this country. Neither do we agree with Dr. Nugent's modification of an Irish Insane Commission. We have already had the proof of the existing plan of inspection doing its duty admirably; continue it, we would say, as being by far the better plan, and continue

also with the Lord Lieutenant and Privy Council of Ireland the authority, in which should be vested whatever plenary powers may be deemed requisite for carrying out the intentions of the Legislature in respect of the government of the asylums. We have been so over-dosed with Commissions and Commissioners, that the very name of either one or the other is calculated to sicken us, and incline us earnestly to implore being delivered from Commissioners of all kinds. A lawyer, too, forsooth, is proposed to be a member of this Central Commission. Now, pray let us ask what have lawyers to do with the management of the insane? Are the lawyers so very ready to divide patronage with and call in physicians to assist them in their councils? If any legal question arise, why not have recourse to the well-paid Law Advisers of the Crown? There is too great a tendency to ignore our own profession in those matters, which should be resisted to the last, and all unnecessary complications by the introduction of the subtleties of the law sternly withstood.

This one-sided and confessedly partial Report deals, or attempts to deal, a heavy blow against the Irish asylums for common humanity in the treatment of their unhappily afflicted inmates, as evidenced by the special and highly coloured statements it contains in reference to the system of mechanical restraint practised in the District Asylums at Armagh[a], Carlow, and Omagh. We shall take these in order: and first as to the Armagh Asylum, we may premise by saying that it is the oldest established of the provincial or district asylums, being now in operation since the year 1825, and having on its board of Governors gentlemen of the first character in social position, and who take the deepest and most laudable and active personal interest in its whole conduct,—a Board headed by the Primate of Ireland. Regarding its responsible officers, it has enjoyed for its Manager, since its opening, Mr. Jackson, a gentleman who certainly is not a professionally educated man, but nevertheless has ever maintained the character of a most sagacious and intelligent public officer, besides always having enlarged views,—views, in fact, much in advance of his day as to the treatment of the insane; and so far as his humanity is in question, we believe we may with the utmost confidence aver that it has ever been of the first order. The Visiting Physician of this Asylum is Dr. Cuming, and we verily believe that if there has been any one feature in his high professional charac-

[a] In a notice of the Commissioners' Report in the last issue of the Quarterly Journal of Mental Science, we perceive that the writer has fallen into an evidently unintentional error, by attributing the Commissioners' censure to the Maryborough instead of the Armagh Asylum.—Rev.

ter more prominent than another, it is that of being humane, almost to a fault. An institution, then, being thus happily circumstanced in its officials, extern and intern, is not very likely to have been cruel, or to have permitted any cruelty in the treatment of its patients. Nor was there, or is there, the slightest ground for any such foul imputation being cast upon it, and, through it, upon the asylums generally in Ireland. This we are enabled to maintain from personal and careful observation ourselves of the restraint bed which the Commissioners have so pointedly referred to in their Report, and described in such a manner as to make it appear that the bed of Procrustes would, indeed, have been a luxury, in comparison to it, to repose upon. And this portion of our notice of the Commissioners' doings, as reviewed, and that with telling effect, in Dr. Nugent's Letter, brings us to the pamphlet, the second in the list heading this review, namely, "The Resolutions of the Board of Governors of the Armagh District Lunatic Asylum, in reference to the Report of the Commissioners," which contains a most complete refutation of the unfounded charge of cruelty, in respect to the mechanical restraint of a furious epileptic patient, brought against this humanely and well-managed institution. The Resolutions in question were unanimonsly adopted, at a full meeting of the Governors, the Lord Primate presiding, and two other clergymen, with four magistrates, being present, after the reading of a statement made by Dr. Cuming in reply to the Commissioners' extraordinary charge. The Resolutions were as follows, viz.:—

"1st. That we have heard read with much satisfaction the observations made by Dr. Cuming upon the Report of the Commissioners appointed to inquire into the state of Lunatic Asylums in Ireland; that we fully approve of these observations, and adopt them as our answer to the statements put forward in the Report in reference to the management of the Armagh District Lunatic Asylum.

"2nd. That we feel that we should be doing an act of injustice to the merits of our excellent Manager, if we refrained upon the present occasion from expressing our high sense of the skill, judgment, and humanity with which he has discharged the duties of his very arduous and responsible situation, for a period now exceeding thirty-four years, during which time 991 patients have been discharged cured, and 460 relieved,—a number amounting to 63 per cent. of those admitted; and constituting a success, as we believe, not exceeded in any similar institution in this or any other country.

"JOHN G. ARMAGH."

A number of independent gentlemen, clergy, and laity, with so exalted and distinguished a Chairman, agreeing to such

Resolutions as the above, at once disposes of the charge of cruelty or inhumanity, implied in the Commissioners' Report; but a short paragraph or two from Dr. Cuming's own clear statement—and we regret our limited space will not enable us to quote more largely from it—will clearly show that this bed of cruelty was one of mercy, and for the ease and greater safety of a patient who, if left to himself, when the subject of his periodical paroxysms of fury and turbulence, would have endangered his own life, and the lives of others of greater value:

"Although restraint is never imposed except with the sanction and by the direction of the Manager, as Physician to the Asylum I am cognizant of every instance in which it is necessary to have recourse to it; and at each of my visits, which I make regularly three days in the week, and oftener when required, I ascertain not only who may be restrained, but also the cause, nature, and duration of the restraint in each particular case; and entry of these facts is made in a book kept for the purpose.

"The passage in the Report which more particularly reflects on the management pursued in our Asylum is the following, page 16:—'A male patient, in No. 2 ward, was found at our visit strapped down in bed; in addition he was confined in a strait-waistcoat, with sleeves knotted behind him; and, as he could only lie on his back, from a contrivance we shall presently describe, his sufferings must have been great; his arms were, moreover, confined with wrist-locks of hard leather, and his legs with leg-locks of similar kind. The strapping was so tight that he could not turn on either side, and any change of position was effectually prevented by a cylindrical stuffed bolster of ticken, of about ten inches thick, which ran round the sides and top and bottom of the bed, leaving a narrow hollow in the centre, in which the lunatic was retained as in a box, without power to turn or move. On liberating the patient and raising him, he was very feeble, and unable to stand, with pulse scarcely perceptible, and feet dark-red and cold. The man had been under confinement in this state for four days and four nights, being merely raised for purposes of cleanliness.'

"Now, before I remark on the character of the case which required a restraint of the kind above described, I must observe that the bed, consisting of a cylindrical stuffed bolster of ticken, which ran round its sides, top, and bottom, so far from being what it might be supposed to be from the picture drawn of it in the Report, is one of the most humane and effectual contrivances that ever was devised for protecting a patient from all injury and suffering, when obliged to be so confined. The stuffed ticken at the top, sides, and bottom, prevents him from being hurt by the hard sides of an ordinary bedstead; and the open in the centre, containing loose straw covered by a sheet, permits of fresh straw and another sheet being supplied, whenever it is necessary to do so for the purposes of cleanliness. To

prove that what I state is fact, I have myself lain on the bed, waistcoated, wrist-strapped, ankle-strapped, and strapped by a broad band to the rail on either side (having thus been subjected to the *maximum* of restraint we ever find it necessary to employ), and when so lying, I felt perfectly free from all pain or suffering, and had sufficient liberty to be able to turn slightly from one side to the other, resting alternately on either hip.

"In simply dirty cases, when there is no occasion for restraint of any kind, this bolster-like bed we find to be invaluable; and by various persons practically acquainted with the treatment of the insane, who have visited our Asylum, the utility of the contrivance has been acknowledged, and appreciated as it deserves. Indeed, if there is one thing beyond another in the management of our institution with which we think we have reason to be well satisfied, it is this very bed, so strongly objected to by the Commissioners.

"But to proceed to the character of the case. The male patient in No. 2 ward, alluded to by the Commissioners, is one of our most dangerous and furiously violent epileptic cases. He has generally an epileptic seizure once a month; and after each alternate attack he is in such a state of violence, threatening not only to destroy himself, but every one that comes into contact with him, that it is absolutely necessary to confine him at once to his bed, and, according to the degree of violence under which he may labour, to restrain him with a strait-waistcoat, or to strap him to his bed in addition; and not unfrequently, owing to his superhuman strength at these times, enabling him to tear the waistcoat to tatters, we have to increase the restraint by fastening his wrists together by well-padded leather straps, secured by a small padlock and key. Sometimes, but not always, it is necessary to secure the legs by soft and well-padded ankle-straps to the lower rail of the bed. This was the kind of restraint under which the Commissioners found the patient when they visited the Asylum; and *frequently since then it has been necessary to restrain him in precisely the same way.* His paroxysms of violence generally last only for a few days; and the very first moment it can be done with safety the restraint is gradually lessened until it can be entirely dispensed with. The patient, who is described as having been in a feeble state, and unable to stand after having been released by the Commissioners, was as well as usual after such violent attacks, and able to go about the next day. The visit of the Commissioners just happened to be at the time when the paroxysm of excitement had come to its termination; and though no visit of the kind had been paid, he would have been immediately liberated by the attendant. In this very case, from an anxiety to liberate the patient at the earliest possible moment it may seem safe to do so, it has frequently been necessary to reapply the restraint a few hours after it has been removed, in consequence of a return of excitement. As to this patient being confined in a strait-waistcoat with sleeves knotted behind him, I cannot conceive how such an occurrence could have taken place, as the sleeves are too short to permit of their being

knotted behind. If there was knotting, it must have been of the *tapes* attached to the ends of the sleeves, and not of the *sleeves* themselves; a circumstance purely accidental, as the rule of the house is, that the tapes, after having been brought round the body, shall always be fastened in front. Sometimes a patient by working with his fingers is able even through the sleeves of the waistcoat to unfasten the tapes in front, and then there is no alternative but to tie them behind. The bulk caused by the tapes when so tied is very trifling indeed, and nothing in comparison with that which would result from a *knotting of the sleeves*, were such an occurrence possible, which I have shown it is not."

Having disposed of the Armagh charge, so portentously and unjustifiably made by the Commissioners, we next come to the Carlow Asylum, in which exception was taken to a patient, the subject of dropsy, "being tied down to his bed and locked up in his cell;" this "cell" Dr. Nugent stating to be inaccurately described as such, inasmuch as it was "a single room on the ground floor," and boarded; and the "tying down" proving to be, according to the testimony of Dr. O'Meara, simply "a wide web belt, which went across the bed, leaving a considerable space between it and the body, when reclining."

In the Omagh Asylum the Commissioners make mention of a bed in use for "refractory" patients, in terms so ambiguous, Dr Nugent observes, as to leave a very unjust impression; and he clearly shows that this bed was neither more nor less than an ordinary one, with a covering of fourteen inches between it and its recumbent occupant, of that class of troublesome inmates well known in all hospitals for the insane, who will not remain in bed at night, but engage themselves, if at their full liberty, in breaking the windows, and in all other kinds of destructiveness, besides injuring their own health by exposure during the whole night. This covered bed, it appears, was a contrivance of Dr. West, the excellent and most humane Resident Physician of the Omagh Asylum, who was for a long time puzzled in several fruitless attempts to apply a remedy to meet this description of unmanageably sleepless inmates, until ultimately he found such in the adoption of this simple and complete method,—one which Dr. Nugent states he himself suggested being had recourse to with a patient who laboured under the delusion "of being at night surrounded by persons who endeavoured to carry her off by force," and by sleeping in which this delusion was gradually subsiding.

Having now exposed to view all the mare's nests of the Commissioners in respect of their effort to stamp our asylums with the brand of positive and wilful cruelty as regards restraint, we

may conclude our notice for the present of their Report, as it has been brought before us in Dr. Nugent's Letter to Lord Naas, by observing that it is with the greatest regret we have seen that any Irishmen could have been parties to the production of a document which bears the impress on every page of a desire to hold forth the institutions for the insane in Ireland in so unfair and so unworthy a light as they have done. Even "to damn with faint praise," they have most sedulously and effectively avoided. Censure, either direct or implied, would appear to have been the Commissioners' stock in trade in the compilation of their Report, which occupied two years and many tons of paper in its preparation. They seem to have taken the greatest care to chronicle the most trifling error, whether of omission or commission; and equal care is taken to give no credit whatever to institutions which, singly and collectively, are second to none at home or abroad, as well for the highest humanity in the treatment of their inmates as for their distinguished success as curative hospitals for the insane. The very statistical Tables obtained from the several Asylums, as printed by the Commissioners themselves, will show that both in cures and in deaths they bear a comparison of the most favourable and satisfactory kind with the best conducted establishments elsewhere.

Report on the Sanitary Condition of the Army, particularly during the late War with Russia. By "A Non-Commissioner." London: Jones. 1858. 8vo, pp. 40.

Since receiving the above pamphlet for review, we have been favoured with a second copy bearing the writer's name. We are glad of this, because it enables us to express our opinion upon the subject-matter of the Report more decidedly than if printed as an anonymous publication, which, when it implicates others, we scarcely ever attend to. This Report purports to show (and we think fully proves) that the statements made by the Sanitary Commissioners in reference to the causes of mortality in the British army have been somewhat erroneous, and that other influences than those principally dwelt upon by the Commissioners, viz., insufficient ventilation, defective sewerage, &c. &c., have had their effect in producing sickness and mortality amongst the troops.

Dr. Browne commences his observations by showing that the development of steam navigation has so facilitated the means of attack upon any State having an extensive and vulnerable

seaboard, such as England, that a power so circumstanced must, for its due security, in addition to an effective fleet, maintain a regular "force sufficiently strong to keep the field, and check the progress of any invader, until the great military resources of the country can be made available."

Dr. Browne then goes on to state that "in a land where conscription is no longer possible, such an army is collected by slow and painful steps;" and he proves it by the fact that, "even at a time of military enthusiasm, it was only by repeatedly lowering the standard, and increasing both the age and the bounty, that 49,150 recruits and volunteers from the militia could be gathered together to swell the ranks during the first thirteen months of the late war with Russia"[a].

Now when men are with such difficulty raised, and at such considerable cost, it certainly behoves the country, or rather those intrusted with its government, to do everything in their power to maintain its army in the utmost health and efficiency. We look with pleasure, therefore, upon each and every successive step taken and being taken by the late and present administrations for the attainment of this desirable end; and there is not, in our opinion, a greater or more important national question at this moment to be solved than the maintenance of the soldier's health; but, as essential to this object, there are, we feel assured, many points that the Commissioners have passed over, or barely noticed, their attention being given more to the dwelling in which the individual is to reside, than to the circumstances, personal or otherwise, under which he is to inhabit them. Take the subject of clothing, for instance, and that all-important article, flannel: we find it thus alluded to, and thus disposed of:—"As regards under-clothing, the balance of evidence, both of commanding and medical officers, is in favour of the flannel shirt. But the opinion of the non-commissioned officers examined is decidedly unfavourable to it, principally on the ground of the increased cost of the article, which is one of the necessaries kept up at the expense of the soldiers."

With these words the matter is dismissed: no recommendation given that the opinion of the commanding officers and medical authorities should be acted upon, rather than the non-commissioned; no suggestion made that the extra expense of flannel should be borne by the country—no! nothing of the kind, not one word more upon this subject; whilst upon smells and defective sewers we have paragraph after paragraph. Upon

[a] Report, Sebastopol Committee, p. 357.

this question of flannel, then, we are at perfect issue with the Commissioners. We know that every unfavourable impression which noxious effluvia can make on the pulmonary, spirit-drinking upon the gastric, or night-duty and exposure to wet upon the cuticular systems, will be less felt by the individual comfortably clothed in a warm and soft flannel shirt, than it will be by him who wears a linen or cotton one. The soldier clad in flannel is comparatively indifferent to chills and damp, and the atmospheric changes from climate; whilst the man who is not so protected succumbs readily to these influences. We cannot account for the slight notice taken by the Commissioners of this deficiency in the clothing of our troops. Look at the habits of the foot-soldier; see him as Dr. Browne represents him, and which we know from experience is his wont, viz.:—

"Buttoned up to the throat at a field-day, or when out in marching order; his chest covered to some extent by thick buff belts, and his back by the knapsack; and thrown by prolonged exertion into a most profuse perspiration; and see him next strip to his shirt and trousers, *if permitted*, the moment he returns to barracks.

"The duties of the cavalry are very different. The dragoon never grooms his horse in his ordinary dress; nor, excepting as a punishment, does he ever carry a heavy load. He seldom remains long inactive on parade, and at drill uses his arms rather than his legs. In exercising his horse his feet are not drenched in the mire or snow."

Yet the cavalry soldier wears, and is compelled to wear, his flannel, and if it is necessary for the cavalry, it surely is equally so for the infantry. Let trial be made, however, for a year in any one regiment of the service, and we feel certain that the sick list of this corps will be diminished from the moment that flannel is taken into use.

The causes which are assigned by the Sanitary Commissioners for the high rates of mortality are four—

1st. Night-duty.

2nd. Want of exercise and suitable employment.

3rd. Intemperate and debauched habits.

4th. Crowding and insufficient ventilation, and nuisances arising from latrines and defective sewerage in barracks.

Let us take these causes of mortality seriatim, and see how far the views taken by the Commissioners are the right ones. In reference to the first, viz., "night-duty," they say:—"We are, after a careful investigation of the subject, disposed to attach comparatively little importance to this head. The com-

parison with the police, who perform a night duty far more severe, and yet have a mortality of only one-half of that of the infantry of the line, and less than one-half of that of the Guards, seems to support our conclusion."

It is in reality, however, but a semblance of support, for, directly the case comes to be closely investigated, it is found that the rules of the mëtropolitan police do not permit of their remaining, if the subjects of even more than temporary ill-health; and the returns furnished by Sir R. Mayne, and published at page 501 of the Commissioners' Report, show that in reality the police force is renewed "*de fond en comble*" in less than five years; whilst of these men no fewer than 57 night policemen die for every 35 of the day police.

"These differences in the rates of mortality in the night and day forces support," says Dr. Browne, "the opinions prevalent in the army that night-duties are injurious to health;" and we should say, holding a contrary view to the Commissioners, carried on in the way in which they are by the soldier,—who is taken sweating, often, from out of the heated guard-room to be posted, almost stationary, in the cold or wet, as sentry for two hours,—very detrimental indeed! Turning to the second cause assigned by the Commissioners for the excess of the mortality in the army, viz., "want of exercise and suitable employment," it, too, is, in our opinion, of far more importance than they have attached to it; for upon it depends in a great measure the third class of mortality, viz., "intemperance and debauchery." Let us endeavour to trace the connexion which exists between the two. Our reasoning is this: the soldier, as a general rule, is not an individual of refined habits; his tastes and desires lead him to seek, therefore, amusement and fun rather than literary occupation, and it is not in the barrack-library or the reading-room that the majority of the men wish to pass their evenings: they like to go rather where they can have singing, dancing, and jollification, with their usual accompaniment, drink. To drinking succeeds intoxication, and, once drunk, the soldier becomes the certain victim of venereal infection; for the class of prostitute with whom he will have connexion, directly he emerges from the public-house (those who hang about the doors of soldiers' drinking-shops at night) is never free from disease, and the poison generated by these women is generally virulent in character, and peculiarly liable to be followed by bubo. Whether it be that the constitution, or rather the system of the recipient of the virus, from being influenced by spirit at the time of its absorption, renders the individual more prone to irritation of the lymphatics, it is impossible to

say; but certain it is that the experience of regimental surgeons quartered in garrison towns, such as Portsmouth, Plymouth, or Dublin, will point to the frequency of bubo as a consequence of venereal sores contracted in these places.

It is, too, at night only, as a general rule, that the soldier either gets drunk or poxed. Surely, then, there should be some strenuous effort made on the part of the War Authorities to induce the man to spend fewer of his evenings from home, by making his barracks attractive in every way, and thus trying to wean him from the whiskey-shop, to which the monotony and tedium of his troop-room now absolutely drive him.

Upon the fourth point, viz., "crowding and insufficient ventilation, nuisances from latrines, and defective sewerage in barracks," the Commissioners throw much stress. They say that to these are to be attributed the ravages committed in the ranks of the army by pulmonary disease, and upon this assumption an expenditure of vast amount is soon likely to be incurred in barrack and hospital reformation. Now, before this sum is laid out (which, to effect what is proposed, must be a very large one indeed), we do pray for the trial of some of those easily adopted projects to which we have alluded, viz., proper clothing to enable the soldier to meet cold and damp, and a due regard to his recreation and amusement. If these fail, then pull down and rebuild, ventilate and trap, and treat the building rather than the man.

But before large sums of money are spent in altering and destroying barracks and hospitals, let it be more clearly proved than, according to Dr. Browne's showing, has yet been done, that the mortality of the soldiers is really owing to the bad sanitary condition of their barracks.

The Report of Dr. Browne next goes into a full and clear defence of the Army Medical Department in the late war in the East, and shows incontestibly that the type of disease, from the broken constitutions of the men, forbade all treatment from being of avail at the commencement; and exhibits the difficulties which those who had the charge of the Reserve Hospitals at Scutari and on the Bosphorus had to contend against. It certainly tells some home truths, and from Dr. Browne's analysis of facts, those men appear to us not to have been fairly used; we think that due credit has not been given to them for their exertions, allowance made for the difficulties of their situation, or justice done to them by those who framed these various reports. The Report of Dr. Browne has confirmed us in another opinion, viz., that the views which were advanced by Dr. Mapleton, of the Staff, in 1855, and presented to Parliament

on the 13th of July, 1858, as to the desirability of bringing the sick and wounded to England direct, instead of opening hospitals abroad, are perfectly correct, and should hereafter be acted upon. England should have a sufficient number of large ships of 2000 tons apiece, each for 500 men, fitted and in every way complete with medical staff, orderlies, cooks, washerwomen, and stores and comforts of all descriptions, to which the sick and wounded soldiers could be carried from the camp or battle-field and borne straight to England,—and then will real economy be introduced, viz., the economy of human life. "Tell," says Dr. Mapleton, "the man badly wounded or diseased that he is to be sent to a reserve hospital in a foreign land, and treated there, and his heart will probably give way, and the sick man will die; but say to him that he is to go *home*, and in the majority of cases he will be convalescent ere he reaches England." On this point we can only say that more truth has seldom been expressed in fewer words. To all who feel interested in the soldier's welfare we recommend the perusal of Dr. Browne's Report.

On Chloroform and other Anæsthetics: their Action and Administration. By John Snow, M.D., &c. Edited, with a Memoir of the Author, by Benjamin W. Richardson, M.D., &c. London: John Churchill. 1858. 8vo, pp. 443.

On Æther and Chloroform as Anæsthetics: being the Result of about 11,000 *Administrations of these Agents personally studied in the Hospitals of London, Paris, &c., during the last ten years.* By Charles Kidd, M.D., &c. Second Edition. London: Renshaw. 1858. 12mo, pp. 115.

On Chloroform and its Safe Administration. By W. Martin Coates, M.R.C.S.L. London: Walton and Maberly. 1858, Pamphlet, pp. 36.

There are few objects of more tender interest in this world in which we live than the posthumous child of one whom, while with us, we loved or admired, and whom, when dead, we mourn and regret; and, in our opinion, much of a similar kind of interest attaches itself to the posthumous writings of men who, whilst living, filled a space in the literary world, and who, when dead, leave a void which may or may not be filled up during our lifetime. Such a work is that whose title heads this article, —a work which may truly be styled Dr. Snow's legacy to his sorrowing professional brethren.

Many are the innovations, some of them improvements, others the reverse, that have taken place in the history of our profession; but in our time there is none that can rival or even at all approach in importance the subject of anæsthesia. A boon has been conferred on suffering humanity by its introduction that can fairly contest the palm with the most valuable discoveries in our art since it first became one; and a deep debt of gratitude is due not only to its discoverer, but to such persons as the late Dr. Snow, who worked out its practical details, and who devoted the study of a life to its development and improvement. To a contemplative mind, conversant with facts, it must be a curious and instructive, as well as a painful study, to reflect on all that the world at large owes to our profession for its comforts, its health, its security, its wondrous conveniences; and at the same time to think how little cognisant it seems to be of these obligations, and how disinclined it appears to be to acknowledge them, even when recognised, in a fitting and becoming manner. These reflections have been forced on our minds by a perusal of the life of the late Dr. Snow, prefixed to his work by his friend, editor, and biographer, Dr. Richardson, and it is but a simple act of justice on our part to acknowledge the ability displayed by him in discharging this last sad office of friendship for one whom in life he seems to have loved and appreciated. The space at our command will not allow us to refer more particularly to his labours in this respect, than to recommend this biography most cordially to the perusal of all those who value genius, and can sympathize with its struggles, and triumph in its successes.

Dr. Snow's work commences with an historical account of the various agents employed as anæsthetics, and to us appears to have decided the *vexata quæstio*,—the claim as to the right of being considered the discoverer of this great boon to humanity at large. We are tempted to reproduce his statement here:

"As long ago as 1818 an article, which is believed to have been written by Mr. Faraday, appeared in the 'Quarterly Journal of Science and Arts,' describing the great resemblance between the effects of the vapour of ether and nitrous oxide gas. This circumstance has since been published in all the standard works on chemistry; and it was the annual custom of the late Professor Turner, of University College, London, to pour a little ether into a bladder of air, and allow some of the students to inhale the vapour. The same practice prevailed, more or less, in other Colleges, both in Europe and America, when the lecture on ether was delivered. The resemblance between the action of nitrous oxide and that of vapour of ether was, therefore, extensively known.

"Dr. Morton, surgeon dentist of Boston, in America, administered sulphuric ether, by inhalation, to a man in his office, on the 30th of September, 1846, and extracted a tooth without causing any pain. He applied the ether in several cases of a similar kind during the next few days. Having obtained the permission of Dr. J. C. Warren, he administered it to a patient in the Massachusetts General Hospital, on whom that surgeon performed an operation on the neck. On the following day, Dr. Morton exhibited ether to a woman in the same hospital, whilst Dr. Hayward removed a large fatty tumour from the arm, and after this date it was frequently administered.

"Dr. Morton was well acquainted with Mr. Horace Wells, before alluded to, and had been in partnership with him. Before administering the ether to his patient on September 30, Dr. Morton had a conversation with Dr. Charles J. Jackson, Professor of Chemistry, respecting the safety and propriety of the application, and the names of these gentlemen were associated in a patent which they took out for the discovery. Dr. Jackson asserts that Dr. Morton knew nothing of the effects of the vapour of ether till he gave him the information; whilst the latter says it was his intention to use the ether before he went into Dr. Jackson's laboratory. It seems impossible to arrive at the exact truth on this point, but it is admitted on all hands, that Morton was the first who administered ether to prevent the pain of an operation. Dr. Jackson has indeed claimed the whole merit of the discovery, on the ground of the alleged information he gave to Dr. Morton; but, if every word Dr. Jackson says be admitted, it only appears that he suggested the use of ether to Dr. Morton, just as Sir Humphrey Davy had suggested the use of nitrous oxide to all the world in the year 1800. Dr. Jackson had inhaled ether as hundreds of others had done, and being aware of Davy's suggestion of nitrous oxide for preventing the pain of operations, he concluded that ether might also have that effect.

"It will be shown further on that Mr. Waldie, of Liverpool, had a greater share in the introduction of chloroform than Dr. Jackson had in the introduction of ether—even supposing that Dr. Morton was previously quite ignorant of that medicine; for when he informed Dr. Simpson of the existence and nature of chloroform, he was able to give him, not merely an opinion, but an almost certain knowledge of its effects; yet Dr. Simpson is justly considered to be the person who discovered and introduced the use of undiluted chloroform as a substitute for ether."

In that portion of his work which is devoted to the consideration of the circumstances which influence or modify the effects of chloroform, Dr. Snow gives us many most interesting and important facts, and at the same time makes some statements worthy of our most attentive consideration. He seems to have given chloroform at every age, from the infant of eight days old to the old man of ninety years, but acknowledges that the age of the patient has considerable influence in modifying

its effects, and on this subject makes the following observations:—

"I have given chloroform in a few cases as early as the ages of eight and ten days, and in a considerable number before the age of two months; and I have at this time, June 30, 1857, memoranda of the cases of 186 infants under a year old to whom I have administered this agent. There have been no ill effects from it either in these cases or in those of children more advanced in life; and it is worthy of remark that none of the accidents from chloroform which have been recorded have occurred to young children."

His views as to the propriety of administering chloroform in cases complicated with cardiac disease are so decided that we feel we should not be doing either him or the importance of the subject justice, did we not give them *in extenso:*—

"*Disease of the Heart.*—There is a very general impression that the use of chloroform is unsafe when disease of the heart exists, more particularly, fatty degeneration of that organ. This belief has been encouraged by the circumstance that this affection has been present in a few of both the real and alleged deaths from chloroform; and also by the fact that, in the accidents that have been really due to chloroform, the heart has been the organ on which it has exerted its fatal influence. When we come to investigate these cases, however, we shall find reason to conclude that the heart has probably been diseased in quite as great a proportion of the patients who have taken chloroform without ill effects, as in those who have succumbed under its influence. As regards my own practice, indeed, the only case in which death could in any degree be attributed to the chloroform was one in which there was extreme fatty degeneration of the heart; but, on the other hand, I have given chloroform in numerous cases without ill effects where the symptoms of this, as well as other affections of the heart, were present in a very marked degree. Indeed, I have never declined to give chloroform to a patient requiring a surgical operation, whatever might be his condition, as I early arrived at the conclusion that this agent, when carefully administered, causes less disturbance of the heart and circulation than does severe pain. Whenever I have had an opportunity of seeing an operation performed without chloroform, I have carefully observed the pulse, and although none of these operations have been of a very severe nature, I have found the circulation to be much more disturbed than it would have been by chloroform carefully administered. The pulse in most of these cases has been excessively frequent during the operation, and in some instances it has intermitted to an unusual extent.

"In a few of the patients having the arcus senilis of the cornea, a weak, intermitting, or irregular pulse, and other signs of fatty degeneration of the heart, there have been a feeling of faintness and a tendency to syncope, as the effects of the chloroform were subsiding, especially when the operation had been performed in the sitting pos-

ture; but these symptoms have soon subsided, in all the cases I have met with, on placing the patient horizontally, with or without the help of a little ammonia to the nostrils."

Neither does he see any objection to its administration in cases of chronic disease of the lungs, such as phthisis, in which he is borne out by our own experience, as well as by a most interesting case recorded by Mr. Fleming in his admirable pamphlet on Chloroform, in which a severe operation (amputation of the thigh under peculiar circumstances) was performed on a patient in the advanced stage of phthisis, with cavities in *both* lungs, and where anæsthesia was induced " without any injurious results, either immediate or subsequent, the pulmonary symptoms not having been ostensibly, in the slightest degree, affected by it."

Under the heading of " Cerebral Disease" he states that affections of the head offer no obstacle to the administration of chloroform, and in support of this view records a case in which alarming head symptoms had existed a few *hours* before the inhalation of chloroform, but in which case, nevertheless, it was successfully administered, and the operation of lithotrity performed in a patient aged seventy-eight years.

A considerable portion of Dr. Snow's work is devoted, and most properly so, to the consideration of the fatal cases of the inhalation of chloroform that have been recorded; these are fully entered into, and afterwards arranged in a tabular form. Most valuable observations are made in this portion of his work, observations that we specially commend to the perusal of all interested in the subject, and we are satisfied that many an erroneous opinion and theory will be thereby corrected. For instance, the opinion prevails extensively, that the administration of chloroform is attended with greater risk to the patient whilst in the sitting than in the recumbent posture. Dr. Snow's statistics lead him to express himself on this point in these terms:—

" In fully one-fourth of the cases of which I have kept notes of the administration of chloroform, the patients were seated in an easy chair; and as in forty fatal cases in which the position is known, only nine, or less than one-fourth, were seated, it does not appear that the position of the patient has had any share either in causing or preventing accidents."

Another erroneous opinionis also confuted by Dr. Snow's statistics, which demonstrate that extreme youth and advanced old age are the periods of life most exempt from fatal results. Now we can readily understand that in youth operations of a formidable nature are not so frequently performed, and this in

some measure explains this fact, but such an explanation does not hold good if applied to the explanation of the comparative exemption of advanced age. Dr. Snow partly attributes the increased rate of mortality at the middle period of life to the fact that patients are then met with in their greatest vigour and strength, that they occasionally struggle violently, hold their breath for a few seconds, then take a deep inspiration, and, if the greatest care be not observed to regulate the quantity of chloroform inspired, they get an over-dose, which proves fatal by cardiac syncope, a result that will always occur when the chloroform constitutes from 8 to 10 per cent. of the air inspired. Dr. Snow expresses his opinion that the employment of many of the means hitherto considered sovereign remedies in cases of apparent death from chloroform, whilst harmless in themselves, are perfectly useless, and should never be employed to the exclusion of what he looks upon as the most important means at present known to save our patients, viz., artificial respiration. This should never be omitted or delayed; and he recommends Dr. Marshall Hall's postural method as the most ready and effectual. However, even this will not often succeed, and his observation on this portion of his subject is wound up with a recommendation of such importance, coming from such a source, that we transcribe it here:—

> "The knowledge how seldom anything effectual can be done for a person who has inhaled a dose of chloroform from which he would not spontaneously recover, ought to impress the rule very strongly on every one, to use the greatest care in its administration."

Passing over the enumeration of the surgical cases in which he has administered chloroform, under the head of each of which diseases he gives us most practical directions for any special manœuvre that may become desirable, and which are well worthy of every practical surgeon's attentive study,—we arrive at that portion of the work devoted to the consideration of the inhalation of chloroform in medical cases, in which many instances are given of diseases in which it has proved of signal service. There is one disease, however, in which the inhalation of chloroform has been proved of such value, and to which the attention of the profession has been in so particular a manner directed by Professor Churchill of this city, that, in our opinion, it merits more than the extremely passing allusion only that is made to it—we allude to hooping-cough. Of the efficacy of this plan of treating this most formidable and hitherto unmanageable disease, we have had, in a pretty extensive field for observation, ample opportunities for self-conviction; and so im-

pressed are we with its extreme value, and so anxious to place so powerful a weapon at the command of our professional brethren, that we venture to transcribe from Professor Churchill's work on "Diseases of Children" the passage in which he describes its efficacy:—

"Soon after the discovery of the anæsthetic effects of *sulphuric ether*, it struck me that it would be likely to modify or suspend the spasm in hooping-cough; and having a case under my care, I directed that a little (I suppose about half a drachm) should be spilled upon the nurse's hand and held before the child's nose and mouth at the commencement of a fit of coughing. I preferred this simple mode of administration (and do still) because of the impossibility of thereby giving an over-dose. The effect surpassed my expectation. Most generally, the paroxysm was shortened more than one-half, often stopped immediately, and the duration of the disease unquestionably considerably diminished. Since then I have tried the ether in twelve or fourteen cases, and *chloroform* in more. In one or two cases, no benefit accrued; in most others, great mitigation of the spasm; and in several, complete arrest of each paroxysm of the cough when the inhalation was commenced in time. Decidedly, also, in two-thirds of the cases, the course of the disease was much shortened, so that I look upon this as a valuable addition to our remedies. In no instance was insensibility or the least inconvenience occasioned. There are two obstacles to its fair administration with very young children:—1. They do not give notice of the approach of the cough, so that by the time the chloroform is ready, the paroxysm has commenced, and, as that consists of expirations mainly, the chloroform will have evaporated before its full effect is produced. 2. Young children resist any apparent impediment to free respiration, as a hand placed before their mouth. I have, however, had an opportunity of trying it in several cases of young persons above sixteen years of age. In two (girls), in whom the hoop was fully developed, it arrested it at once; and, after using it for two days, the hoop entirely disappeared, a trifling cough only continuing for some time. In a third (girl), it was used from the commencement. It immediately stopped or prevented the hoop, and always relieved the tickling preceding the cough; and, after using it three or four times a day for three weeks, the disease disappeared. She never lost appetite or sleep, vomited only once or twice, and was never distressed by the cough. Her brother, who had the disease most severely, also took chloroform, and it reduced the paroxysms more than one half in num-

ber during the twenty-four hours, without diminishing their intensity; but, as it seemed to make him stupid, it was suspended, and prussic acid given, under which treatment the disease was cured in a month."

To this we shall only add our testimony to the fact, that it has great influence *in cutting short the course of the disease.* We have notes of several cases in which the immediate relief afforded by its employment, great though it was, was not nearly so remarkable as the rapid termination of the case in complete recovery.

Dr. Snow enters also fully into the production of anæsthesia by sulphuric ether, amylene, and the monochloruretted chloride of ethyle. He speaks highly of the safety of sulphuric ether, but most strongly objects to the employment of a mixture of it with chloroform, and that on sound chemical principles; for these, however, and for many other points of great interest, we must refer our readers to the work itself, contenting ourselves with assuring them that it is many years since we have met with so practical a work, or one which seems to have been written with a purer philosophical spirit. To establish facts, to state them concisely, to enter fully into every detail of his subject that might prove of interest to the professional reader, and withal to write with modesty, appear to have been his aim; and, in our opinion, he has been eminently successful in obtaining that object.

At Dr. Snow's decease, that there should have been aspirants to fill the position he had so long and so honourably occupied was but natural; and that these candidates should put forward their claims by trying, in some one way or other, to prove their competency, was also but to be expected. We presume it was with some such views that the author of the *brochure* that stands second on our list strung together various papers that had already appeared in some of our medical journals, and rushed into print with *his work* on "Æther and Chloroform," announcing it as the *second edition*,—though when or where the *first* edition appeared seems to be an enigma that it would require an Œdipus to solve; dubbing himself, amongst his other qualifications, a "Fellow of the Surgical Society, Ireland." Now though we have been for many years an humble *member* of that distinguished Society; we still must plead our utter ignorance of that high-sounding title of "Fellow:" that there are such persons as Fellows of the Royal College of Surgeons in Ireland, we know to our cost; but *Fellow* of the Sur-

gical Society, we must again repeat, is a title that, up to the appearance of Dr. Kidd's book, we had never before heard of; however, we can only say that we live and learn.

We never remember opening a work of its pretensions in which such a variety of topics have been introduced as the one under consideration: of it, it may truly be observed, that "nil erat quod non tetigit," and would that we could add "nil tetigit quod non ornavit"! We verily believe that, were the title-page removed, and the book itself placed in the hands of any of our readers, he would be puzzled to determine on what subject it was written. Such a variety of topics are introduced, that any of the sciences might address to the other the words of the poet, "Mutato nomine de te narratur fabula." From the "Novum Organon" of Bacon to the latest absurdities of clairvoyance, all come in as fish to his net; but it is as a commentator on Shakspeare that he appears to us most particularly to shine; so much so, that were we to venture to offer Dr. Kidd a suggestion, it would be that he should adopt the following as the title of any future edition that he may bring out of his book:—"The Dramatic Works of William Shakspeare anæsthetically considered;" for we can scarcely read a single page of his work that we do not find lengthened extracts from the writings of the immortal dramatist; nor would we object to this, were it not done to the exclusion of matter that, in our minds, would be more germane to the objects he proposes to have in view.

Even when he does descend to the humble task of writing on anæsthetics, our author makes statements with which we are by no means inclined to agree; for instance, when we read:—

> "We are still, as regards the mass of the profession, too much inclined also to look on chloroform inhalation as a sort of lottery—in which it signifies very little whether good or bad æther or chloroform be used—or in how large or how small quantities either of these agents be administered, so that a certain steadiness of hand and inexpensive rule of mere imitation be learned from the out-patients' department of our larger hospitals."

We, for the honour of Irish surgery, indignantly repudiate the statement; that such an assertion is untrue, at least so far as the Irish School is concerned, in our opinion, is demonstrated by this fact, that in the numberless instances in which chloroform has been employed in surgical operations in this city, though no one amongst us can boast of an individual experience of 11,000 cases, still *we have not as yet had the misfortune of having had one single fatal case.* This argues something more

than mere chance; and we are convinced that the statement is equally unfair towards our brethren of Great Britain.

One other passage from his book, and we are done: this passage we introduce for the purpose of rendering justice to the memory of the late Dr. Snow, on a point that we are convinced, if living, he would be most tenacious of. Dr. Kidd states that—

"Dr. Snow mentioned to many the particulars of the case in which the tenderest sympathies of the public were twice excited on certain memorable occasions, and the quantity was very small."

Now hear Dr. Richardson's testimony on the same point, in his most interesting memoir of Dr. Snow:—

"Inquisitive folk often overburthened Snow, after these events, with a multitude of questions of an unmeaning kind. He answered them all with good-natured reserve. 'Her Majesty is a model patient,' was his usual reply: a reply which, he once told me, seemed to answer every purpose, and was very true. One lady of an inquiring mind, to whom he was administering chloroform, got very loquacious during the period of excitement, and declared she would inhale no more of the vapour unless she were told what the Queen said, word for word, when she was taking it. 'Her Majesty,' replied the dry Doctor, 'asked no questions until she had breathed very much longer than you have; and if you will only go on in loyal imitation, I will tell you everything.' The patient could not but follow the example held out to her. In a few seconds she forgot all about Queen, Lords, and Commons; and when the time came for a renewal of hostilities, found that her clever witness had gone home to his dinner, leaving her with the thirst for knowledge still on her tongue."

From the length to which these observations have run, we have not much space left at our command for Dr. Coates' pamphlet, the object of which, however, has our heartiest concurrence, viz., to point out the danger of employing larger doses of chloroform than are necessary for producing anæsthesia. His method is to bring his patients under its influence by allowing them to inhale, first, five minims of chloroform, with the view of diminishing the sensibility of the larynx; then, after twenty seconds have elapsed, ten minims; after forty seconds, fifteen minims; which quantity is repeated every minute until anæsthesia is induced.

When the patient is weak or anemic, Dr. Coates administers to his patient, previous to the commencement of the operation, a small dose of brandy, a suggestion for which he acknowledges himself indebted to a gentleman whose name he has unfortunately forgotten. As we can supply this deficiency, we

shall venture to do so, and beg leave to inform him that if he consults Dr. Fleming's pamphlet, already alluded to in this article, he will find, in page 36, that it is to him he is indebted for this most valuable suggestion.

In conclusion we must say, that we agree with Dr. Coates' views as to the propriety of employing smaller doses of this most powerful agent. When a smaller dose will suffice, it is worse than useless to jeopardize our patient's life by using a larger one; and if even one life be saved by Dr. Coates' warning voice, we are assured that he will feel satisfied of having reaped his reward.

There is one other subject, however, on which we would wish to raise our warning voice, and it is this—that the members of our profession should steadily set their face against their patients venturing to employ chloroform themselves, even in the most trifling affection. Fatal cases have before now occurred in consequence of a breach of this advice; and we are induced more particularly at the present moment to refer to this subject, as, whilst in the very act of correcting the proof of this article, we were hastily summoned to the assistance of a lady who, to relieve toothache, had recourse to chloroform, which, unassisted, she had inhaled from her handkerchief,—a proceeding that would most certainly have been attended with fatal results, had it not been for the providential entrance of a friend, who found her lying completely anæsthetized, with the handkerchief, still saturated with chloroform, firmly applied to the mouth! The mere mention of such a case will, we are sure, be attended with the results that we desire.

PART III.

MEDICAL MISCELLANY.

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY[a].

(*Continued from* vol. xxvi. p. 221.)

SESSION 1858–59.

Opening Meeting, October 13, 1858.

The President, Professor O'Connor, in the Chair.

Case of Retention of Urine. By W. P. Bernard, L.F.P.S.G., Demonstrator of Anatomy, Cork School of Medicine.—"On 9th April last, I was called to visit R. S., Esq., aged 82, of active and moderately temperate habits. On seeing him about 6 P. M., he complained much of general uneasiness, pain in the abdomen, chiefly referred to the hypogastrium; but expressed his full conviction that if his bowels were freely relieved, all would be well. His skin was hot and dry, pulse quick, and his tongue thickly coated with a brown fur. He stated that up to the previous day he had enjoyed his usual good health; but in the evening had indulged very freely, some old friends having dined with him. On examination I found the bladder much distended, it not having been emptied at all during the day. He did not complain of any inconvenience from the retention, and looked at the matter as of little importance, and as likely to right itself when his bowels were cleared out; though at this time his efforts to pass water had completely failed (though the desire was sometimes strong), and his power over the bladder appeared totally lost. I proposed relieving him by the catheter, but he obstinately refused to submit to the introduction of an instrument; when, after in vain urging on him the danger of delay, and the necessity of prompt interference, I gave him 2 oz. of

[a] These Reports have been furnished to us by Dr. S. Henry Hobart, Secretary to the Society.—Ed.

black draught, and ordered him a warm hip-bath immediately, to be followed up by hot stupes over the lower part of the abdomen, and 15 drops of muriated tincture of iron every fifteen minutes until five or six doses had been taken.

"9 P. M. Still unrelieved, and vesical tumour much increased since last visit. The distress being now manifestly attributable to the distended state of the bladder, makes him anxious for relief by any means. On attempting the passage of a full-sized catheter I found that the external orifice would not admit an instrument larger than a No. 6. This passed freely as far as the prostate, where it was arrested. On examination per rectum the gland was found considerably enlarged. The case assuming so serious an aspect, and the patient being most nervous and excitable, I thought it expedient to get the assistance of a second, and sent for my friend Dr. Cummins, who lived near. We now succeeded, after much difficulty, in slipping the instrument past the obstruction, and thus giving immediate relief. To have at once blue pill and colocynth, followed by black draught.

"10th. 8 A. M. Bowels freely relieved during the night; bladder moderately distended. On examination per rectum I found the prostate manifestly reduced in size, and the introduction of the catheter was comparatively easy.

"12th. 6 P. M. Bowels again confined; has walked out a short distance to-day. Increased difficulty in passing an instrument is again met with; and on examination I find the prostate perceptibly increased in size since last report. To repeat his pills and draught as before.

"13th. 8 A. M. The medicine has acted fairly, and the instrument meets with much less obstruction. Up to this time the catheter has been passed twice in the day; the bladder continuing quite paralyzed, but the kidneys have acted fairly. Soon after our visit last evening, from some trifling cause he become most passionate and excited; and this morning, for the first time, complains of slight lumbar pain. Appears drowsy; tongue furred and dry; kidneys acting very imperfectly, not more than 3 ounces of urine having been secreted during the past twelve hours. To have one drachm of sweet spirits of nitre in a little flaxseed-tea three times in the day, and to be kept as free as possible from all mental excitement.

"15th. Secretion of urine much improved to-day.

"16th. Still improving. To walk out a little.

"23rd. 8 A. M. Urine secreted abundantly, and his general health much improved; now suffers only from the retention, which continues complete. To have ten grains of ergot of rye three times during the day, with directions to encourage any attempt at micturition as much as possible.

"24th. The ergot has not succeeded as well as we had hoped, though the desire to micturate had been sometimes very strong.

"26th. 8 A. M. Retention continues complete, not a drop of water having been passed without the instrument since the commencement of the attack. We decided on giving the ergot another trial during the day, and directed ten grains to be taken every four hours. 6 P. M. Has succeeded, with some effort, in passing about one ounce of urine soon after taking the second dose of ergot.

"27th. 8 A. M. More hopeful; has recovered some slight power over the bladder. To continue his ergot powders until the six ordered had been taken. From this time the bladder began more and more to recover its power, requiring the introduction of an instrument only once in the day

"April 30, 6 P. M. Called in haste to see our patient, whom I had left about two hours before, looking well, and in good spirits at his rapid and continued improvement. I found him in bed, complaining of excessive pain in the back and loins, headach, and extreme cold, which occasioned violent shiverings. Hot stupes were immediately applied to the back and feet, and warm drinks administered. This gave some relief; and in about two hours from the commencement of the paroxysm he began freely to perspire, and fell into a quiet slumber.

"May 1st. Very weak and depressed from last night's attack; has no headach or pain. I now learned that about a month since he was seized with an attack similar to the present, but not nearly so severe. Some of his family were then suffering from ague, which was very prevalent in the district. To have two grains of blue pill and three grains of sulphate of quina three times in the day.

"2nd. No return of aguish paroxysm. Feels stronger. To continue his pills.

"4th. Appears much better to-day.

"5th, 8 A. M. On my visit this morning I found him very drowsy, and speech much impaired. He complained of much difficulty in getting up sputa, which were very tenacious. Memory defective; pupils sluggish; contour of face slightly altered, tongue dry and furred; pulse slow and laboured. He has passed a large quantity of water during the night, which is strongly ammoniacal. On introducing the catheter, the bladder was found to have been well emptied. I again met Dr. Cummins in consultation (who had ceased to attend); when we applied a blister behind each ear, mustard sinapisms to the calves of the legs, and administered calomel and James' powder.

"6th. Blister rose well, and pours out much serum. Is rather better to-day, and appears less drowsy.

"From this time he got on well, though anemic and much debilitated by his long illness. He took for many days ten drops of muriated tincture of iron in one ounce of infusion of quassia three times daily, and derived much benefit from its use. When I last saw him (about a fortnight since) he had regained complete power over the bladder, and appeared in excellent health. He takes a blue

pill occasionally, and is never without the muriated tincture in the house. His memory is again perfect, but his power of articulation has never been completely restored.

"*Remarks.*—This case, though hurriedly detailed, presents some points of interest. Retention of urine from chronic enlargement of the prostate is but too frequently met with in advanced life; but not so frequently do we see *sudden* engorgement of that gland giving rise to complete retention, and disappearing under treatment calculated to relieve the hepatic circulation. In the foregoing case the difficulty in passing an instrument was invariably increased, and the prostate perceptibly enlarged by previous exercise or constipation; while rest in the recumbent position or a mercurial purge produced a manifest improvement in these symptoms.

"Could the ague poison have lain dormant in the system, and acted as a predisposing cause to the enlargement of the prostate, and subsequently to the head symptoms? The presence of ague in the family, and its prevailing very generally in the district, made us think this at least possible; especially when we remember that in the cold stage of ague the blood is driven from the surface of the body to the internal organs. Or must we look on the after complications as due to the absorption of urea, though the kidneys acted fairly and the bladder was regularly emptied?

"The benefit derived from the use of the ergot is not to be overlooked. It was prompt and efficient in its action, giving tone to the bladder, and unattended with any unpleasant symptoms. It shows also that although ergot acts as a stimulant to the *pelvic* organs, its *modus operandi* is not through the medium of the vascular system. In other words, that we need not dread its producing a determination of blood to those parts; for, while acting most satisfactorily in this case by increasing the organic nervous power of the bladder, it produced no increased congestion of the prostate, which was evidently the *original* cause of the retention. It happily fulfilled the object intended, without in the slightest degree interfering with our efforts for the removal of the prostatic congestion, by unloading the portal circulation."

Dr. Bernard also read the following case of *Superfœtation*:—Mrs. D., aged 26, a healthy mother of two children, was, on the 7th September last (at the full period of utero-gestation) seized with labour pains, which progressed naturally, and terminated, after about seven hours, in the birth of a well-formed and healthy child. The expulsion of the placenta was attended with unusual suffering, the pains both in character and intensity simulating those of the second stage of labour. Within fifteen minutes it was thrown off, and with it, attached to its fœtal margin by an umbilical cord measuring fifteen inches (and which proved on examination to be quite ligamentous), the blighted and flattened fœtus which I present to the Society. It appears to have arrived at about the fourth month, and was enclosed in its own membranes, which enveloped it

closely; the liquor amnii having probably been absorbed in consequence of the same pressure which produced the flattening of the fœtus. There was not the slightest tendency to decomposition.

Remarks.—In this case the death of one fœtus during the early months of utero-gestation was not followed by the least symptom of abortion; nor did its presence in the uterus appear to produce any injurious effect upon its more fortunate companion, which continued to grow, and was ultimately expelled, a living and well-developed fœtus, at the full time. Such cases, though not often met with, show with what tenacity the uterus retains its charge, even under adverse circumstances. It is evident that in this instance the cause of death must have been ovaline, and quite independent of any maternal influence.

October 27, 1858.

Professor O'Connor, President, in the Chair.

Case of Hysterical Catalepsy. By Dr. Cummins.—"Catalepsy is a disease of such rare occurrence, that hitherto no instance of it has been brought before this Association. Indeed, it has been doubted by some respectable authorities whether such a disease exists; several authentic cases have, however, been published, and within the last few weeks I have witnessed the case which I am about to read.

"A young lady, of full and apparently vigorous habit of body, who has suffered from occasional irregularity in the menstrual function, and has for some years been subject to a loud barking cough, with, from time to time, paroxysms of dyspnœa, was attacked about twelve months since with pain in the right side, for which she was attended by Mr. Oakshot, and leeched. Since that time she was occasionally under the care of that gentleman for fits, in no one of which, however, he informs me had he an opportunity of seeing her; but he believed them to have been of a hysteric character, and treated them as such with marked relief. On the 21st of last month she was at an evening party, and underwent some violent mental emotion; next morning, after taking a cold bath, she suddenly became unconscious, and continued in a trance-like condition for two hours, when I was called in, and found her in her bed, lying as motionless as a statue; the eyes open, but not staring; conjunctivæ somewhat congested; pupils slightly dilated; respiration tranquil; pulse regular, feeble, and rather quick; carotids beating forcibly; head hot; feet and legs very cold. I observed her carefully for some time before I made any attempt to rouse her; I turned her face towards me, and it remained in that position; I placed it in various other positions, with the same result; I even raised it several inches from the pillow into a position the most constrained, and there it continued suspended without support, and apparently without any muscular effort; I then experimented on the extremities in the same

manner, but found that they were not affected by the cataleptic condition.

"Having observed her thus carefully, I thought it time to endeavour to rouse her, and dashed some cold water on her face; this had an instantaneous effect; she drew a full inspiration, burst into a violent paroxysm of sobbing, and soon recovered perfect consciousness. Her chief complaint, on waking from the trance, was of severe headach, which she said she had suffered from since morning, and of coldness of the extremities. I accordingly had hot bottles and additional covering applied to the feet, and cold to the head; she complained also of pain and tenderness on pressure over the left hypochondrium and lower part of the præcordial region, which was somewhat relieved by a sinapism. I directed perfect quiet, with freedom from all sources of mental emotion, and two pills of calomel, colocynth, and James' powder to be taken at bed-time. Towards evening she had a slight fit, with momentary unconsciousness; but as I was not with her at the time, I am unable to state whether the cataleptic phenomena were present. Next morning I found her better, although the tenderness over the hypochondrium was rather increased, and the heart's action violent. The cardiac sounds were very audible over the entire chest, and towards the apex of the organ I fancied I could detect a soft systolic murmur, which, however, on subsequent examination, I failed to hear. She informed me that for some months past she has suffered from great fulness of epigastrium after taking any kind of food, this being at times so severe as to terminate only when the stomach relieved itself by vomiting. On examining the spine, I found that pressure on the vertebræ caused pain along the entire dorsal and lumbar regions, but was so intense at the two first lumbar spines, that the patient started, as if electrified, on the lightest pressure.

"I had six leeches applied to the right hypochondrium to relieve the excessive pain at that part, and repeated the pills at bed-time. She had a few hysteric fits during the day, but without losing consciousness. Next day I saw her with Mr. Oakshot, and found her much better; no return of the fits, heat of head quite gone, pain of side greatly relieved; we prescribed valerianate of zinc with galbanum three times a day, and pills of blue pill and colocynth at bed-time. After a few days she was able to go about, and had no return of the fits.

"A week or so after, I paid her a visit, and found her complaining only of a rigidly flexed condition of the little finger, which she informed me had continued two days, and prevented her playing on the piano; I easily straightened it, causing but little pain, and thus broke the spell, so that she immediately regained perfect control over it. The tenderness of the spine still continues, but the most tender point is now between the scapulæ.

"This was evidently a marked case of hysteria and spinal irritation complicated with catalepsy, and in this instance there could

be no doubt as to the hysteric character of the catalepsy; but the general question as to whether catalepsy is an hysterical disease, whether indeed it is more allied to epilepsy or hysteria, is not quite so simple, and its solution is so important, as bearing upon prognosis, that I have been induced to inquire somewhat into it.

"Dr. Hooper classifies catalepsy with epilepsy as a kindred disease, and states that 'the intellectual faculties seem to suffer by its frequent repetition;' also, 'that the general principles on which it should be treated are the same as those of epilepsy.'

"Tweedy says:—'A frequent recurrence of cataleptic or ecstatic fits may terminate in more severe affections, as epilepsy, apoplexy, mania, or confined insanity;' at the same time he admits that 'in general they are complicated with hysteria.'

"Dr. Thomas, moreover, says:—'It [catalepsy] sometimes changes into epilepsy, apoplexy, or melancholia.' On the other hand, Copeland remarks:—'I believe that many cases in females are chiefly exalted or more severe states of hysteric affection;' and again:—"The relation of catalepsy to uterine or sexual excitement, and consequently to hysteria, has been manifested in most instances.'

"Dr. Watson also says cataleptic fits are seldom attended with any danger to life; and further:—'If I were to speak of the treatment most suitable for their cure or prevention, I should merely have to repeat what I said upon the treatment and prevention of hysteria.'

"The cases mentioned by these authors in support of their views are, for the most part, explicable on the hysterial hypothesis; but it must be admitted that, although few and far between, and bearing a *very small* proportion to those of hysteric character, there are cases in which catalepsy seems to exist as an independent disease, or as a modification of epilepsy. This peculiar condition of the nervous or muscular system, or of both, exists, then, under conditions very different as regards prognosis, and this can only be explained by its dependence in the one case on a definite and removable cause, such as a local and distant source of irritation, whether existing in the sexual organs or in the gastro-intestinal membrane; while in the other it depends upon disease of the nervous centres.

"We must be satisfied, therefore,, with the knowledge that there is far less cause for apprehension when catalepsy appears in a patient who has suffered from or is the subject of hysteria, than in those rare instances of the uncomplicated or epileptic form of the disease."

On Neglected Fracture of the Lower End of the Radius, or Colles' Fracture. By JOHN WILLIAMS, A. B., M. D., &c.—"Fractures in the immediate vicinity of joints are in many instances very difficult of detection, and this difficulty results either from the coexisting tumefaction of soft parts, from the situation of the joint itself, or in consequence of the *manner* in which the bone is fractured. I do not conceive it necessary to illustrate these several hindrances to the detection of a fracture occurring in the neighbourhood of a joint, as every practical surgeon must have frequently met with them.

"If the fracture occur close to the hip, under cover of a mass of superjacent tissue, considerable difficulty is frequently experienced in forming a diagnosis, and I have known the skill of surgeons of no mean reputation baffled under such circumstances. I am fully convinced, however, that the inability to decide as to the precise nature of the injury was excusable. But is it so in those cases where the fracture has occurred close to a superficial joint, and where the non-recognition of such is unfortunately too frequently met with, and which is followed by a deformed, and, perhaps, a useless limb, a memorial, a permanent monument of a neglected fracture? Well indeed do those casts, which were taken a few days ago from a woman who fractured the lower end of the *right* radius seven years ago, and the *left* radius in the same situation two years ago,—both of which fractures were not recognised,—exemplify the deformity which results from neglected fracture of the lower end of the radius. I would state what was not true if I asserted that a direct censure on him who failed to detect them was not implied in these remarks; but I must deal lightly with others when I reflect that—'Nemo nascitur sine vitiis.'

"In making the following observations on neglected fractures, I do not want to arrogate to myself superior skill in the detection and treatment of Colles' fracture; the former being, comparatively, a matter of little difficulty: I merely wish to draw the attention of the Society to the amount of usefulness acquired by the hand, notwithstanding the great deformity which is persistent after the lapse of some time. During the last six years I have had many opportunities of observing cases of neglected fracture of the lower end of the radius, some of pretty recent, and others of old standing, and the symptoms complained of were, in nearly all the cases I met with, constant; this is what would be expected when we consider the very trifling variation that is at any time seen to exist in the situation of the fracture, or the resulting deformity, &c., &c.

"The fault of neglecting a fracture often lies entirely with the patient himself; or in the case of the incomplete fracture of children—as is seen in the cast on the table—with one or both of the parents, who are either deterred from seeking medical advice, thinking the injury to be nothing more than 'a mere sprain;' or from parental prejudices often actually preventing the surgeon from adopting proper treatment, and the result, necessarily, is a deformed limb, at least. But it may be asked, what do I consider the proper treatment in the incomplete fracture that occurs in *early* life. Although incomplete fracture of a long bone generally occurs in childhood, it might happen much later in life. I have *seen* the case of incomplete fracture of the radius in a boy eighteen years of age, which came under Mr. Adams' notice when I was resident in the Richmond Hospital. To which question I answer, *the making of the fracture complete;* when this is done, the intense pain caused, in a great measure, by the straining of the periosteum, and by the splintery fragments, and the great tension, are almost instantly relieved, and finally the patient re-

covers with a *straight limb*, which otherwise could not be expected. Some surgeons, I believe, recoil from the very thought of such practice, but it is the only one that ought to be adopted in incomplete fracture.

"Permanent deformity of a limb tells the tale either of neglect or bad treatment; but if the deformity be combined with loss of power, the matter is worse.

"In neglected fracture of the lower end of the radius, the deformity, as those casts show, is very great indeed. But as I will notice more particularly hereafter—the usefulness of the hand is not, in the majority of cases, at least in those which have come under my observation, much interfered with.

"Fracture of the lower end of the radius is portrayed almost invariably by constant physical signs, and the deformity is almost in all cases uniform; it has been aptly compared to the back of a silver fork, or to the head and neck of a snake. These appearances are well seen in this cast, which was taken from a well-marked case. The deformity, as you perceive, is very great, and is caused by the displacement backwards of the carpus with the lower fragment of the radius; and by the lower end of the upper fragment which projects anteriorly, and also by the effusion which takes place beneath the tendons.

"This fracture of the radius, known in this country as Colles' fracture, takes place from half an inch to one inch above the carpal end of the bone, and is usually transverse. It is caused either by direct or indirect violence; in the former instance, falls on the palm or back of the hand most frequently produce it; here the hand is fixed, and the weight of the body suddenly coming on it causes the radius to snap. When the fracture is produced by indirect violence, which is a less frequent cause than the former, the body is fixed, and the force directed against the palm of the hand; for example, a boy, when crossing a street, rested his hand on the end of a long balk that was passing by on a car; the wheel going over a stone caused the end of the beam suddenly to tilt up, and produce this fracture; in this instance the body was fixed, and the force directed against the palm. In this injury, the fracture is confined to the radius. The ulna sometimes is displaced from the giving way of its connexions with the former bone; the displacement of the ulna varies; sometimes it is thrown forwards, at other times backwards or outwards; inwards is the worst position for it to occupy, particularly if the case be neglected. The deformity, in neglected cases, which is well seen in these casts, is, in my experience, never diminished by time. Compare the cast of this injury, which occurred seven years ago, with this, which was taken from a recent case, and the deformity in both will be seen to be almost identical.

"As I before remarked, the characters presented by this injury are due to the displacement backwards of the carpus with the lower fragment of the radius, which is displaced obliquely. In the normal condition of things the articulating surface of the radius has its

aspects downwards, forwards, and inwards; but in fracture these are changed to downwards, backwards, and outwards. Such being the nature of this injury, my object in these remarks is to show that in neglected cases, where the fragments have not been placed in apposition, and consequently the normal condition of the joint is not restored, the usefulness of the hand and wrist are, after a time, almost completely restored, although the deformity remains.

"To illustrate these remarks, I beg to direct the attention of the members present to the casts of this injury on the table. The two I now hold were taken a few days ago from the right and left hand of the same individual, who, I regret, could not be induced to come here. Not long since I happened to notice the deformity, and ascertained from her that 'she fell on the back of her right hand seven years ago, when she sustained this injury, which laid her up for six weeks, and that about two years ago she likewise fell and sprained, as she thought, the left wrist, and that on each occasion the injury was neglected.' She also states 'that she can use her right hand as well as ever, but after long-continued exertion the left wrist gets weak, although it does not prevent her from her usual occupation.' She complains of a numbness and tingling in the fingers, and also a sensation of heat in the hand; the complaint of numbness, &c., in the fingers is very general in cases of neglected fracture of the lower end of the radius. To be guilty of a paradox, we rarely see deformity from injury so symmetrical, in both wrists of the same individual, as is illustrated by these casts, and although symmetry in deformity is often seen from gout or chronic rheumatism, Colles' fracture, with the deformity identical after the lapse of years, is not often seen in both hands of the same person, and both fractures neglected. I regret I could not get the woman to come here, and I assure you I experienced no little difficulty in getting the casts.

"Case II.—Mrs. C. sustained this injury in the left hand about four years ago; the fracture was neglected, and for a long time her hand was nearly useless; lately, however, very fair power of the wrist has returned; she can even hold her fork in carving.

"I have seen many cases during the past six years of neglected fracture of the lower end of the radius, and in one case only was the hand useless, or nearly so. The case I allude to was that of a young woman who received the injury in England thirteen months previously; great deformity existed, and the wrist was so weak that she could not use the hand. In those occupations, such as knitting, where the action of the thumb is directly opposed to that of the fingers, as in holding the knitting-needle, considerable time must elapse before the hand can be used; inability to hold the knitting-needle is almost universally complained of by females in cases of neglected fracture; but even this power will, I think, in most instances, be recovered after the lapse of time. In Case II. we find, after four years, an ability to use the fork.

"Numbness and tingling in the fingers, with the sensation of heat and an inability to grasp tightly a small article with the thumb and

forefinger, are the most frequent complaints; but generally the hand acquires a fair amount of usefulness; this is not to be wondered at when we consider that the integrity of the wrist-joint is preserved. In those cases where the ulna is displaced inwards, and the hand outwards, if the injury be neglected, the result is different; here we cannot expect so useful a hand. I think it will be found a general rule that, the shorter the lower fragment, the greater the amount of usefulness acquired.

"If the pronator quadratus muscle assist, as assuredly it does, in causing the obliquity of the lower fragment, which, of necessity, must interfere with the action of the flexor muscles, it follows that, the shorter the lower fragment, the more trifling must be its interference with the action of the flexors; for in this case very few fibres of the pronator quadratus muscle are attached to this fragment, and therefore the influence exercised by this muscle is much diminished."

November 10, 1858.

Professor O'Connor, President, in the Chair.

Case of Hemoptysis.—Mr. Orpen exhibited the lungs and heart of a man named Connell, aged 58, a labourer, who was admitted into the Cork Union Hospital, under Dr. W. C. Townsend's care, on Monday, 1st November, suffering under hemoptysis of a severe character. He stated that he was spitting up large quantities of blood for the last ten days; that he had been in this hospital three years ago with scorbutus, under Dr. O'Connor's care; and that he had enjoyed tolerably good health until he got this attack. He presents a pallid, worn appearance. Ordered, acetate of lead, 24 grs.; distilled vinegar, 1 oz.; tincture of opium, 2 drachms; distilled water, 7 oz.: mix; to take one ounce every second hour. To be kept perfectly quiet; to have milk, arrow-root, and beef-tea.

Tuesday. Last night he spat up over a quart of florid and frothy blood. Pulse weak and thready; has no cough, and breathes easily; no pain nor uneasiness; slept tolerably well; is in great spirits. To continue the lead mixture, with citric acid solution for drink.

Wednesday. Had no return of the hemorrhage during the day yesterday, but during the night he spat up over a pint of frothy blood. He is very prostrate; countenance blanched; circulation very rapid and weak. Continue the mixture; to have bladders containing ice placed continually over his chest, and to get lumps of ice in his mouth; support with beef-tea, &c.

Thursday. He is still spitting up blood, but to a less extent. Continue medicine.

Friday. The hemorrhage seems stopped; bowels confined. Ordered a draught of castor-oil immediately; stop ice, continue the mixture, and support. About 10 o'clock P. M. he became very much oppressed; and in a short time afterwards he spat up a large

quantity of blood, after which he became quickly insensible, and died in about fifteen minutes.

Autopsy.—The left lung, which was contracted—not half the size of the other—was found to be firmly adherent to the pleura and parietes of the chest. On removing the lung, which was done with great difficulty, a large cavity, capable of containing a walnut, was found to exist in the superior lobe, communicating with several smaller cavities, the entire being surrounded by a dense fibro-cartilaginous structure. The remaining portion of the lung was of a dark gray colour, its parenchyma being obliterated (cirrhosed), easily broken down, and infiltrated with serum. The mucous membrane lining the air-passages was of an unusually pale colour, and exhibited very little traces of vascularity. The superior portion of the right lung was thickly studded with miliary tubercles. There was some effusion into the pericardium. The semilunar valves were somewhat thickened. With this exception the heart was healthy. A quantity of dark-coloured fluid was found in the stomach. The liver was enlarged, and presented the nutmeg appearance. No clot, lesion of vessel, or any trace of the hemorrhage, could be detected, after the most careful examination.

Case of extensive Heart Disease; Dilatation, with Hypertrophy of all the Cavities of the Heart, of the Aorta, and Pulmonary Artery. By William C. Townsend, Assistant Physician to the Cork Union Workhouse Hospital and South Infirmary.—"As it seems to be the wish of the Society that the case of extensive heart disease which I brought under its notice the last evening of the past Session should be more fully discussed, I have, through the kindness of Professor O'Connor, our President, obtained the pathological specimen which is now before you, stripped of its adherent pericardium. I shall commence by reading the following note, which I received from my friend Dr. Lloyd, under whose care he was in the South Infirmary, previous to his admission into the Workhouse Hospital.

"'57, *King-street, Oct.* 30, 1858.

"'My dear Townsend.—Murphy, the patient to whom you refer, having suffered from repeated attacks of articular as well as cardiac inflammation, as I could learn from him, was admitted into the South Infirmary in August, 1857, at which time he laboured under a violent attack of cardiac inflammation, which had supervened on hypertrophy with dilatation of apparently long standing. He presented, besides corresponding general symptoms, tumultuous action of the heart, violent impulse with the first sound, which was masked in a great degree by a loud bellows murmur.

"'Having been treated with mercury, local bloodletting during the acute stages, this was followed up by counter-irritation, guaiacum, colchicum, the liquor and then the hydriodate of potash, &c. Much improvement in the general symptoms occurred under these means, while the cardiac impulse became considerably diminished, and the bruit far less marked. The signs and symptoms of hyper-

trophy with dilatation still prevailed to a very distressing amount when he left the hospital in October.—Believe me, dear Townsend, yours sincerely, D. Knight Lloyd.'

"It appears, that after he left the South Infirmary he went to Dripsy, and remained in that neighbourhood for some time, and that he enjoyed very good health until about the 15th of January, when he sought admission to the Workhouse Hospital. On admission he was suffering from a slight febrile attack, and on examination I found he had extensive disease of the heart; his countenance was pale and anxious, great dyspnœa and sleeplessness, cardiac pain, and constant palpitation. The sounds of the chest were clear on percussion, except in the region of the heart, which was dull to a much greater extent than natural, the dulness extending over to the right nipple. The action of the heart was very strong, tumultuous, with great extent of the area of impulse; a distinct double bruit of a sawing character was audible over the pericardial region, and extended up along the aorta and vessels of the neck. The jugular vein was distended and visibly pulsating; the radial pulse had a peculiar jerking character.

"The plan of treatment adopted was avoidance of all stimulants, the occasional use of alteratives, tincture of digitalis and muriated tincture of iron, and a nutritious diet. After a short time he improved very much, and enjoyed very tolerable health until about the 1st of May, when he caught small-pox from one of the patients in the hospital, and although it was of a very mild character, he became greatly depressed; from this depression he never rallied. He became soon quite anemic and anasarcous, the heart acting very violently; and he died on the 24th of May.

"*Autopsy*, twenty-four hours after death, by A. E. Orpen, M. R. C. S. England.—General anasarca of the whole body. The pericadium was very much disorganized, and universally adherent to the surface of the heart, with the exception of a small portion at the apex of the heart. This portion was distended with a clear serous fluid; no appearance of any recent deposition of lymph was observed. The cavities of the heart were very much dilated and hypertrophied, the left particularly so. The left ventricle was capable of containing at least one pint of fluid; both sides contained enormous clots of dark blood. The valves were apparently healthy; the clots were removed, and the cavities carefully washed out. The heart was then weighed by Mr. Gardiner, the apothecary to the hospital, in presence of Drs. Popham, Townsend, and Orpen; it was found to weigh 48 ounces.

"The important points for consideration in this case are the hypertrophy and dilatation, as producing great alteration in the natural force of the heart's impulse, and its great area of extent; the distinct double bruit, sawing murmur, and jugular pulsations.

"To determine the effect produced when the pericardium is adherent through its entire extent to the heart is a matter of much

importance to the pathologist, and, therefore, this case claims from us a very large amount of interest, particularly when we find such men as Stokes, Skoda, Barlow, and others, differing as to the effect produced. Dr. Stokes says:—'Obliteration of the pericardium does not necessarily induce any manifest change in the condition of the heart.' Others hold that atrophy is very frequently the consequence. Now although it may not always follow that adhesions between the heart and its investing membrane—no valvular disease existing—should produce hypertrophy, this case fully proves at least its possibility. Here we have a heart enormously enlarged, its cavities immensely dilated, yet its valves are apparently healthy; there is no ossific deposit, nor, as far as we can discern, is there, with the exception of the pericardial adhesion, the slightest appearance of disease. Can there be a doubt but that the primitive lesion was pericarditis, followed by extensive effusion of lymph, which completely obliterated the pericardium, *leaving the tissue of the heart unchanged;* that this entire adhesion so interfered with the heart's action as to render necessary a greater amount of force (the defect must be provided for); the increased demand created a necessity for a larger supply. Clearly in this case the hypertrophy and dilatation was the result of pericardial adhesions.

"We have next to consider the double bruit, sawing murmur, and jugular pulsations. It is very difficult to conceive the existence of double bruit and sawing murmur, without the slightest appearance of disease of the heart's valves or orifices; the only way I can account for it is, that in a heart so greatly enlarged, and that enlargement not confined to any one part, it may so happen that the closure of the valves may not be perfect, and that a murmur or murmurs may be produced by regurgitation, particularly if there be patency of the aortic orifice and its valves.

"We have next to consider shortly the immediate cause of death. Markham in his work says:—'It is evident that hypertrophy and dilatation of the heart must be in themselves productive of certain effects, that is, must give birth to certain pathological conditions in the system, quite independently of the causes by which they themselves were provoked.' Now it is very difficult to calculate what effect would have been produced on the system had this boy lived a few years longer, and the heart have increased in the same ratio; but there can be little if any doubt, that the immediate cause of death was the arrest of nutrition consequent on the attack of small-pox. The blood became lessened in quantity, deteriorated in quality, and the large amount of healthy blood now necessary for the proper stimulation of cavities so enormously overgrown was quickly felt; the action of the heart became irritable, the arteries unfilled, the capillary circulation obstructed, until death released him."

November 24, 1858.

Professor O'Connor, President, in the Chair.

Case of Obstruction.—Mr. Orpen exhibited the large intestine of a man named Daniel Connell, aged 25, an inmate of the Cork Union Workhouse, who had suffered on several occasions during the past three years from severe attacks of bilious cholera; otherwise he enjoyed good health, was stout and robust. On the night of Monday, the 15th of November, he was attacked with severe and cutting pain in his bowels, with vomiting. He was sent into hospital, and visited by the house surgeon (Mr. Gardiner), who ordered him to have a mustard sinapism applied over the stomach, and the following pill: calomel, 5 grains; powdered opium, half a grain. On Dr. Townsend's visit at 11 o'clock A. M. he was suffering great pain, referred to the umbilicus, with constant vomiting, the matter ejected being of a greenish colour; tongue moist, furred; pulse 84; no evacuation from bowels for the last three days; ordered to get a gruel enema; and calomel, 10 grains, powdered opium, 1 grain, in two pills, to be taken immediately, to be repeated in four hours, if necessary, and to have a blister to the epigastrium. He did not retain the pills; and the enema not having acted, a second was administered in two hours afterwards, which brought down some scybalæ; after this he became easier, and fell asleep for some hours. As evening came on, the retching and vomiting increased, the ejected matter being of a yellow colour, afterwards of an olive tint, and disgustingly fetid. About 9 o'clock P. M. he became very restless and oppressed. He was seen by Dr. Townsend at 10 o'clock P. M.; he was then quite collapsed; a mustard sinapism was placed over the præcordial region; ordered wine and brandy. He died in about an hour afterwards.

Autopsy, twelve hours after death.—The neck, back, and thighs were quite livid. Both lungs were highly congested; effusion into pericardium. A large quantity of fat was deposited upon the intestines. The stomach was healthy, and nearly empty. The small intestines were distended with gas, and exhibited slight traces of redness. About a quart of fluid, of the consistence of gruel, occupied the terminating portion of the ileum, and the cæcum. The transverse colon was of a blackish colour; its coats were thickened, and the caliber of the gut narrowed; at the commencement of the descending colon, the gut was contracted and completely closed up; the contraction was so great that a common crow-quill could scarcely be passed through it. Immediately below the constriction the intestine was of the usual caliber, and of an unusually pale colour.

Case of Stearrhœa Nigricans. By Dr. Harvey.—"About twelve months since I was called to see a young lady, aged 19, of light, clear complexion, who was complaining of intense pain, evidently of a neuralgic character, in the temple and whole side of the head. It

was so much aggravated at night that she got little sleep, and used to walk about her room for hours together. In the daytime she was languid and chilly, and the circulation on the surface looked stagnant. Her eyes were heavy and dull; her hands and feet disposed to be cold; and she suffered a good deal from weakness and pain of her back. She was unwilling to go out, or use any exertion; and would not admit that anything ailed her but the pain in her head, to which, she said, she had always been subject, and which she maintained would never be served by any 'doctoring.' Her appetite was bad; tongue smooth and pallid, with a thin, creamy coat; pulse very small and weak, seldom exceeding 80 to 84; bowels always obstinately confined, and acted on with difficulty when she did take medicine. Catamenia perfectly natural in all respects, and had been so for years.

"After I had seen her a few times, during which period I had given her mercurial and afterwards tonic aperients, with occasional antispasmodics and anodynes—these last giving very little, even temporary, relief—I noticed a black patch occupying each lower eyelid, presenting all the characteristics of stearrhœa nigricans. The surface looked slightly moist; and when observed through a lens of half-inch focus, the exudation appeared to consist of minute hairs, grains of carbon, and oily matter. The pigment could be readily washed off, particularly when soda was added to the water.

"This continued, increasing and diminishing with the alternating severity and mitigation of the constitutional symptoms. These were slow in giving way; but under a plan of treatment consisting of tonic aperients, generous diet, open carriage exercise, and similar means, she gradually and steadily improved; and when I last saw her, she was perfectly well. I ascertained, however, that on the occurrence of any debilitating or agitating cause, a slight return of the darkness had been observable from time to time.

"I am induced to add the above case to those already collected in the interesting communications on this curious affection which have lately been published by M. Leroy de Mericourt in France, and by Drs. Neligan and Banks in our own country; partly that I consider it a duty which we all owe to our common science, to contribute what we can, even though it be trifling, towards the elucidation of rare or partially obscured disease; and partly that the case presents some features to a certain extent different from those already on record.

"In this case it will be observed that the menstrual function appears to have been in a perfectly healthy condition; and, though it had been more or less deranged in several of the cases by the above-named authors, and though the affection has been observed in females (and comparatively young females) only, and indications of a hysterical character have been manifested in many,—still, in the absence of further information than we have yet obtained, I should be disposed to consider the catamenial disturbance and the skin affection as both effects of more general derangement of the health, rather than place

them in the relation of cause and effect. In Mr. Younge's case, though the menses had not made their appearance in a girl sixteen years old, she was reported 'healthful.' In Mr. Teevan's it was scanty only; and in two of Leroy de Mericourt's cases, pregnancy occurred, and proceeded healthily throughout, without diminution of the stearrhœa."

Dr. R. Corbett then read the following case of *Suppressed Exanthema*:—"On Wednesday, November 20, 1856, I was summoned a distance of seven miles from town to visit F. C., aged 10, whom, on my arrival, I found lying on a bed, wrapped in blankets. There were congestion of the face, a vacant stare, and insensibility to any object or noise about him. The pulse frequent and small; skin and extremities colder than natural; respiration slightly hurried; deglutition perfect.

"The history given me of the case was:—That on the previous day, intending to return home to Cork, the lady, at whose house he had been on a visit, walked with him to the neighbouring village, about a mile distant from her residence, to meet some friends, who were about to come to town in their own carriage. The child never seemed in better health, frisking playfully along the road. On getting into the carriage he almost immediately complained of nausea, began to retch, and very shortly to vomit. He was at once removed to the house which he had just left, and soon after his return, in addition to continued vomiting, his bowels were largely affected, and he fainted. His father, who had been sent for, arrived almost immediately after the latter occurrence, and finding the child in a state of collapse, administered sherry wine—the only stimulant at hand—in a large proportion, considering the boy's age, but which his state of prostration demanded. He rallied, and seemed so much better that his father left him at 11 o'clock that night. It was the following day I saw and found him as before described. It could not be ascertained whether anything had been taken into the stomach which might account for so sudden a seizure, and such urgent symptoms. His aspect, when I first saw him, appeared that of a person suffering from the effect of some narcotic poison.

"Finding both his parents expressed great anxiety, and feeling the difficulty there would necessarily be in affording him that continued attention which his case required, I did not hesitate in sharing the responsibility of his removal to his own home. This was accomplished by laying him horizontally on a small mattress, which rested on the knees of both his parents, in a four-wheeled carriage. He arrived in Cork at 5 o'clock P.M., and was at once put carefully to bed. Dr. Edward Townsend was called in, and saw him immediately with me. We both concurred in opinion that there existed some heavy cerebral pressure; in evidence of which was a sharp but short convulsion, with which he was attacked when within a mile of the city. He had no return of convulsion. Six leeches were at once applied to the temples, and continued fomentations to the legs, which so far

relieved, that on the following morning (21st) the little patient recognised, and for the first time spoke to, those surrounding his bed. Although the leeches were only allowed to fill themselves, and no after bleeding encouraged, the heart, in addition to the shock of the attack, felt the effect. The chief indication then seemed to be judicious support; and the administration of arrow-root with wine, alternately with chicken-broth, was directed. Medication consisted in ordering one grain each of calomel and James' powder to be given every fourth hour. He had only taken two doses when the bowels began to run, and the discharges, which were copious, exhibited a most curious appearance. They consisted of a green, leaf-like substance, united, as it were, by stems, and here and there mixed with layers of transparent mucus, without any feculent smell. I had one of these stools carefully filtered, and the leafy appearance was preserved on the filtering paper even when dried. There was no return of vomiting after his arrival at home. Throughout his few days' illness, pressure over the umbilical region caused him to wince and complain. The kidneys throughout secreted freely. He drank well, and took his support up to Friday. On Saturday morning (the fifth day from his attack) he, for the first time, complained of his throat, and exhibited symptoms of cynanche, with external enlargement of the glands at both sides of the neck, which gradually increased within a few hours to a large size; and on Sunday morning the secretion of mucus in the fauces became so distressingly troublesome as to require the repeated use of a syringe, so as to enable him to swallow, which he did with difficulty, and to attempt which he had a great objection. He began at length, towards the middle of the day, to resist and refuse all nourishment, and beef-tea, &c., were thrown up per rectum. In the afternoon he became restless, jactitating, and throwing off the bed-clothes, and at $5\frac{1}{2}$ o'clock he succumbed. There was no necropsy. Being an only son, a fine intelligent boy, and a favourite with all who knew him, I scarcely permitted two hours throughout each day to elapse without visiting him, and I had the continued assistance of Dr. Townsend—Dr. Cummins, too, saw the case with us—so that as far as means could be devised and carried into effect to relieve his urgent symptoms, no effort was spared. The unceasing and most judiciously careful nurse-tending of his parents was anxiously performed. We were each day looking out with hope for some eruption on the skin, but at no period did any appear.

"It was in some way or other mooted, and the little patient himself, in what was supposed to be a delirious moment, said, that 'red berries' had been ingested, but of this there was no evidence. The question then arose, to what was attributable so sudden and so quickly fatal an illness in a boy in full health on the day of the attack. In some four days after his removal from the house where he had been on a visit, the mother and children of the family were attacked with febrile symptoms and sore throat, which eventuated in scarlatina, but all recovered.

"To the lurking poison of this exanthema, then, must have been owing the symptoms of this patient. I feel that there is nothing new or extraordinary to bring before the Society in the case detailed; but, looking on it as an instructive case, I thought it well to give it in detail, that we may be led to look closely to every symptom that may arise when an epidemic such as scarlatina prevails."

December 8, 1858.

Dr. Gregg, Vice-President, in the Chair.

Case of Secondary Syphilis. By Dr. W. C. Townsend.—"On the 25th of last September I was called on to visit Mrs. S., aged about twenty-three years, and married a little over three. I had some acquaintance with her, having, on former occasions, attended her father and mother previous to her marriage. She is slight, well made, but of delicate constitution. I found, on inquiry into the cause of her illness, that she had, some days previously, a miscarriage, which confined her to bed for a couple of days. The evening before I saw her she complained of severe pain in the left side, a little below the scapula, for which a mustard poultice had been applied with little benefit. On examination I found her hot; tongue slightly loaded; with quick pulse; no headach; complaining very much of the side, and very restless; no dulness on percussion; nor could I with the stethoscope detect the slightest pleuritic or pulmonic derangement. She had no cough or expectoration; and I found, on tightly compressing the muscles of the affected side, that it afforded her much relief. The cuticle of the affected side was slightly blistered by the mustard poultice; all discharge from the vagina had ceased. Ordered mercury with chalk, and Dover's powder, of each three grains, every four hours, and nitre whey.

"26th. Had a restless night; complains a little of the head; but thinks the side is better; has no cough or expectoration; nor the slightest desire for food of any kind. The bowels have not been opened for two days, but there is no fulness or uneasiness. Ordered one ounce of castor-oil immediately, and a liniment composed of equal parts of soap liniment, and laudanum, with one drachm of chloroform to the six ounces, applied with lint and oiled silk to the painful parts. The powders to be continued after the bowels are well relieved; to be supported freely with farinaceous diet.

"27th. She is not better this morning, although the liniment has slightly blistered; the castor-oil has acted freely; is very feeble, and when raised in the bed, complains of sinking and great debility; pulse 90. Ordered chicken-broth and a little wine in arrow-root every six hours. The powders to be continued regularly.

"28th. The first thing that struck me was a peculiar dirty reddish appearance of the face and neck, with which, on close examination, I found the entire body closely coated over. She feels better, and had some tea and toast for breakfast, which she enjoyed;

slept very well, and expresses herself decidedly better. Ordered to continue the broth, wine, and powders.

"29th. This morning there was a copious eruption of copper-coloured papulæ all over the body, closely resembling small-pox. She feels greatly better, but complains somewhat of the throat, which is covered with the same rash; her appetite is now good, and she takes a fair quantity of wine and broth. She is very anxious about the rash, as she states that she had already small-pox and scarlatina; her side still pains her, and she complains of some pain in the chest at the right side. Ordered to continue the Dover's powder, and mercury with chalk.

"October 1st. The rash is now quite developed, covering the entire body; the small pustules quite flattened and copper-coloured; she complains of great depression and want of appetite; her tongue is pale and flabby; the mouth is not sore, nor is there the slightest mercurial fœtor. Ordered five grains of iodide of potassium, and one drachm of tincture of bark, three times a day, and three grains of mercury with chalk, with five of Dover's powder, every night. Wine and broth to be continued.

"3rd. Improved very much since last visit; tongue clean; appetite returned; is quite cheerful; and, except the rash, which is slightly faded, feels now quite well. Ordered to continue the iodide of potassium with bark, with mercurial and Dover's powder at night.

"She continued to improve on the same treatment; and, by my advice, left on the 8th for the country, to spend some days with her brother. The rash had not entirely disappeared, but had a very pale, molecular appearance. After a week's absence she returned, apparently quite recovered. I then directed her to stop the bark and iodine, and to take mercury with chalk and Dover's powder, of each two grains, three times a day, after meals, which she continued until the 25th, when I took my leave.

"I never, either to the lady or any member of her family, hinted that, in my opinion, she suffered from syphilis; but, on her leaving Cork, I called on her husband and to him stated my opinion. He told me that about two years ago he had contracted syphilis, and immediately placed himself under the care of a surgeon in Cork, who ordered him pills and lotion. The pills he took for about three weeks, but without any perceptible effect, except the healing of the ulcer; and being, as he was informed, quite well, he never bestowed a thought on the matter afterwards. He appeared quite shocked, and declared nothing would have induced him to marry had he the slightest idea that he was so affected. On examining the penis he pointed out to me a straggling, depressed mark, about one inch in extent on the glans, perfectly free from hardness, but bearing ample testimony that there had existed a deep and extensive ulcer. I have carefully ascertained that this lady never had any abrasion or discharge from the vagina, nor did she suffer any inconvenience up to the time of the abortion.

"There are few in practice who do not meet, from time to time,

such cases as I have detailed. Fearfully do they demonstrate the stern necessity that exists, and that, trumpet-tongued, speaks to the surgeon, that he should use all diligence and skill, so that, as far as in him lies, he may endeavour to eliminate and expel from the system a disease the polluting influence of which exercises such influence, not alone on the health, but on the happiness of mankind. It is quite evident that this lady contracted syphilis through the medium of a contaminated fœtus; her husband, fully convinced that he had been cured of the disease by his surgeon two years ago, and since that time up to the present having never observed a symptom, now finds himself the unhappy medium, not alone in inflicting on his wife a disease of a serious character, but he has unwittingly destroyed his offspring. No man who has had large experience in the treatment of syphilis can shut his eyes to this fact, that, no matter how carefully he may treat the disease, there will occur to him, from time to time, in practice, cases—'such obstinate cases'—as will try his patience and tax his ingenuity, and which can only be accounted for by some peculiar state or condition of the individual; still, these cases are the exception, and a large one, to the general rule. I feel convinced, after some years of a not very limited experience, that if a case of primary syphilis be carefully treated in the early stages, it will be found, in by far the greater number of cases, as very manageable. We cannot say the same for secondary syphilis,—a disease the end of which no one can determine."

December 22, 1858.

Professor O'Connor, President, in the Chair.

Pneumothorax, Empyema, and Dislocation of the Heart.—Mr. Orpen exhibited a lung, and detailed the following case:—

Jeremiah Murphy, aged 24, stone-cutter, just come home from America, where he has been for the last twelve years, had enjoyed good health up to January last, when, being exposed to wet, he caught cold, and was very unwell for some weeks, and noticed his expectoration tinged with blood. Last June he had copious hemoptysis, with a severe stitch in his left side, for which he was admitted into one of the New York hospitals, where he got a variety of treatment, winding up with cod-liver oil. Being recommended change of air, he left America in the early part of September, and came home.

He was admitted into the Cork Union Hospital, under Dr. W. C. Townsend, November 9, 1858. On admission he presented a worn and wasted appearance. He had a hard and frequent cough, with metallic resonance, which was increased by sitting up; considerable dyspnœa, less in the recumbent than in the erect position; decubitus dorsal, or rather diagonal, towards the left side, (from the time he had the attack in June, up to the middle of October, the decubitus was solely on the right side); circulation 100; expectoration

in greenish purulent masses, frothy; respiration 32. The left side of his chest was cylindrical; it measured three-quarters of an inch more than the right. Below the mamma, total dulness existed; above it, the sound was clear and tympanitic. Amphoric resonance and *tintement métallique* were heard very distinct in the mammary in front, and in the scapular regions posteriorly. Some loose crepitation audible in the upper portion of the subclavicular region, and above the clavicle; in the remaining portion of the lung the respiratory murmur was indistinct. On succussion the splashing sound was very distinct. Placing him on his face and hands, the posterior regions on the left side, which previously exhibited intense dulness on percussion, became clear. The heart was observed to pulsate under and somewhat above the right nipple. He stated that he first noticed the change in the beating of his heart, as well as the splashing sound (which he compared to fluid jogging about in a beer-barrel) a short time after landing from America. The respiration in the superior portion of the right lung was intensely puerile. He was put on cod-liver oil and expectorants for his cough. The oil brought on diarrhœa, and had to be discontinued. He was freely supported with nutritious diet, wine, beef-tea. Latterly he suffered frequently from severe pain in the stomach, for which he was ordered repeated opiates, which afforded him some relief. His pulse became very feeble and frequent, and the muscular debility extreme; his hearing became painfully acute; and, worn out and exhausted by hectic, he sank December 16, 1858.

Autopsy, 24 hours after death.—Emaciation extreme. The circumference of the thorax at the nipples measured 34 inches. The left side was one inch wider than the right. The left intercostal spaces were broad, smooth, and slightly bulging. On cutting through the cartilages of the ribs, some air escaped from the left pleural cavity. It was full of purulent fluid, of a stinking odour; fourteen pints were removed. The heart was found encroaching on the right pleural cavity, being thrust across the mediastinum, the apex lying vertically under the right nipple. The right lung had contracted firm costal adhesions in its lower two-thirds; it was hepatized, and a few tubercles of a cheesy nature were scattered through it. The left lung was contracted and flattened, and thrust upwards and backwards towards the mediastinum and vertebral column. It was attached by dense adhesions to the posterior walls. Little of the cellular texture of the lung remained. It was studded with tubercles of a cheesy nature, and was encircled by a layer of false membrane, which completely prevented its expansion. On inflating the lung through the bronchus, a few bubbles of air were observed to escape through a small circular aperture in the superior anterior portion of the lung. This aperture was plugged up with mucus. On passing a director into this opening, and slitting it up, it was found to communicate with a very large cavity, filled with mucus. Into this cavity a bronchial tube opened. The larger bronchi were loaded with the same kind of mucous effusion. The whole of the

left costal pleura and diaphragm were coated over, and corrugated with lymph. The abdominal viscera were thrust out of their natural position. Looking from below, the left ala of the diaphragm was forced downwards in a tense convex pouch, the point of its greatest convexity reaching on a level with the umbilicus. The spleen was small and pushed over, lying near the median line. The liver was enlarged, and presented the nutmeg appearance. It was displaced somewhat upwards, at the expense of the right thoracic cavity, pushing the right ala of the diaphragm up before it. The stomach appeared to have been subjected to great pressure. It was placed obliquely, the lesser extremity having descended considerably into the abdomen. The mucous membrane exhibited a good deal of redness. The heart was pale. A few bony specks existed on the mitral valve.

Fiendish Attempt at Castration in the Human Subject. By Charles Armstrong, M. D.—"John W., aged 30, married, father of three children, publican, of strumous diathesis, in the midst of a row, which he was endeavouring to quell, that occurred in his establishment, was attacked by one of the party, whom he had never seen before, and a fiendish attempt made by this person to drag away his testicles by sudden and brutish force. The testicles, probably from the violence of the grasp, and just before the hellish drag was made, slipped from within the hand of the scoundrel, who, however, tore away the greater part of the scrotum, with a corresponding portion of the trowsers, the latter being of substantial and recent manufacture.

"In less than half an hour I saw John W., who was in bed, and much collapsed, but calm and sensible in the midst of much excitement; for by this time two prisoners from the rioters were arrested, and several policemen, with their officer, were in the house, some being in the room with the patient. On removing the bedclothes, both testicles, particularly the left, were lying, deprived of all covering, loosely on the thighs, and the left groin was so much injured as to enable me to pass my finger, through the left inguinal canal, nearly into the abdomen. The testicles were held *in situ* by the spermatic cords alone, which were also much injured; and the edges of the scrotum, which escaped the grasp of the villain, were tattered and torn,—all presenting an appearance so horrifying as to render it a matter of gratification that so savage an occurrence was rare in this country, though not unfrequent in other parts of the world far less abused than Ireland has been for want of civilization and refinement. It is true, however, that the culprit was an Irishman, who, having been abroad for some years, learned this diabolical practice far away from his native land, for the committal of which he was sentenced to a penal servitude of seven years.

"A slight cordial having been administered, and heat applied to the feet and legs, the tattered portions of the wound were carefully cut off, and the testicles, being placed *in situ*, were with much diffi-

culty covered by the remaining part of the structure, the edges of which were kept nearly in contact by the application of nine sutures, and all supported by compress and bandage. Subsequently an anodyne was given, which produced a quiet night.

"Here was a wound likely to assume a serious, if not fatal character, not alone from the important organs and parts so severely injured, but from the impression made on the mind of the sufferer, who apprehended, if not death, at least the loss of his virility. He was, however, brave, sensible, and resigned; and strictly adhered to advice throughout his protracted confinement, in the course of which he was occasionally seen by the medical officers of his regiment (for he was a soldier) as well as by many of the civil practitioners of this city, because the case caused much popular excitement, and created some interest amongst the faculty.

"The details of treatment would be tedious. Suffice to say that it consisted in the application of leeches, &c., and the opening of abscesses and burrowing matter which from time to time formed in the wound, left groin, and perineum; together with close attention to the constitution and state of the mind. And I dwell on the latter, exercising, as it did, a powerful influence here; a practical observation worthy of attention, for I fear that the close association between mind and matter, and its effect, are too much overlooked in contending with disease,—a striking instance of which association I lately witnessed in the person of a young and healthy man, who became violently insane on its being discovered that he proved to be the father of an illegitimate child, whose birth he fondly anticipated would have been concealed.

"The finale of John W.'s case was favourable, with the exception of his virility. That was destroyed, the loss of which acted so forcibly on the mind as to alter his habits, and led him to pursue a course of reckless dissipation that probably brought on phthisis, which not long since terminated fatally.

"The record of this case is very short, though it at once arrests the attention, chiefly by reason of its *diabolical* as also its unusual character. For a considerable time it was impossible to pronounce that the testicles were organically destroyed, as these organs, up to my last examination, retained their original size, and the subject of them asserted that his venereal powers were unimpaired; and further, the generative process, under all circumstances, is so far beyond our comprehension as to form a fruitful theme for the speculation of the physiologist; hence it has been aptly termed by Dr. Blundell "the Fairyland of Physiology."

"Before the wounds were healed, and while the testicles were of their original size, the Judge of Assize before whom the prisoner who inflicted these injuries was tried, asked me the very pertinent question, 'Pray, is the man's virility destroyed?' I replied in the negative. Time, however, has proved that my answer was eventually incorrect; but how far the 'reckless dissipation' that imme-

diately followed produced or aided in the destruction of his generative powers, I cannot say.

"I have used strong terms—fiendish, brutish, scoundrel, villain, &c.,—as applicable to the perpetrator of this foul crime; and surely no language is too strong in condemnation of an act so outrageous. No doubt the deliberate performer of such a deed would be a congenial companion for the followers of that greatest of all ruffians—the cool-blooded murderer of the women and children at Cawnpore, Nana Sahib, whose name disgraces humanity."

On the Morbid Anatomy and Symptoms of Cancer of the Pancreas. By J. Da Costa, M. D.

Dr. Da Costa presented the following paper on Cancer of the Pancreas:—

At a former meeting of the Society I exhibited a specimen of primary cancer of the pancreas, and was requested to report more fully on the occurrence of this affection, and on the symptoms by which it is marked. In accordance with this wish, I beg leave to present this paper, accompanied by a table of thirty-seven cases, derived from various sources, and including two brought before the Society.

I have not endeavoured to swell the number by instances adduced from the older writers; I have not included in the subjoined Table the three cases of Morgagni, the five cited by Bonetus, or the thirty-six observations on scirrhus of the pancreas, which Lieutaud has collected; nor have I referred to the oft-mentioned, but exceedingly unsatisfactory accounts given by Heberden; but I have attempted to bring together the cases of pancreatic disease which have been published by authors still living, or not long deceased, and such as seemed to have been undoubtedly cancer of the organ.

The great difficulty, indeed, in studying cancer of the pancreas is, that, while the older writers have most evidently confounded all chronic alterations of the pancreas under the title of scirrhus, many of the later physicians have taken the ground that cancer does not affect this gland; that all the observations, certainly those of primary cancer, are erroneous, and have brought about a scepticism with reference to the whole subject, which, in connexion with the rarity with which the organ is carefully inspected in post-mortem examinations, has tended much to retard our knowledge of its morbid states. Yet there are (leaving out the descriptions of the older writers) a sufficient number of well-authenticated cases of disease of the pancreas on record, not only to prove that the gland is frequently the seat of cancer, but also that, in all probability, cancer is the most common of its chronic affections. These very cases, too, demonstrate that the malignant diseases of the organ are not always,

...and seized the vessel in the port of London, and it was impossible but that we should demand immediate satisfaction for it. In the remarks we made upon the affair at the time we pointed out the gravity of the offence, and intimated that steps would be taken by Commodore Phillimore, who commands on the station, to obtain the reparation required without delay. It might have been thought that the Spaniards would only have been too glad to do credit to their new institutions by a prompt satisfaction of these legitimat demands, such as any other nation would offer, and that they would be supported in their course by public opinion, but it seems that we must not expect so much. The *Epoca*, a Madrid newspaper, which claims a peculiar position and importance, is quite wounded at the tone we took in the article in question, and enters into an argument to show that there is no sort of case either for reparation or apology, or for anything else than congratulation upon the capture effected under the circumstances we have detailed. The *Epoca* begins by complaining that we showed a hectoring spirit towards "la pobra y-abatida Espana;" but we must remark that the fact of Spain being in such a deplorable condition affords no justification for outrage, neither can it be accepted as a reason for refusing reparation. Weak powers, like strong

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the Recorder.

The case was commenced on Saturday, as given in yesterday's *Courier*. The judges were of opinion that the plaintiff had established his title to the property in question, and was entitled to sustain the verdict. The rule to enter a nonsuit was accordingly discharged.

THE RAID ON GAMBLERS.—What becomes of the "fine" money extracted from the purses of delinquents by the nimble fingers of blindfolded justice? The exchequer of the courts is realising a large income just now by a raid on gamblers. Last week alone, it is said, the fines amounted to £1,250. It would be a good idea if law breaking could be made productive to the general community. If so, every offender convicted would represent a percentage off the taxation. Any inducement which the system might seem to hold out for the increase of crime could scarcely operate on the minds of criminals, and the general public would be on the alert is it benefited in a failure so indirect, so highly respectable, from the delinquencies of law breakers.

THE KING OF PRUSSIA.—It was recently stated that the King of Prussia was about to make a journey in Hanover and in the other annexed provinces, and that he would start on the 23rd. A Berlin despatch afterwards announced that his Majesty's departure was postponed on account of illness. The Paris *Patrie* now declares it has positive information that the journey has been put off for political reasons. "It was ascertained," the *Patrie* says, "that the people of Hanover, who are opposed to Prussia, intended to get up hostile demonstrations against the King, and it was feared that too much attention would be

as has been affirmed, secondary, but that cancer may commence in the pancreas and be confined to it, or else extend from it to surrounding textures.

When the pancreas become cancerous the disease usually attacks its right extremity. The whole gland may be equally affected, or only the middle portion and the splenic end suffer; but this is not frequent. For the most part the cancerous change takes place mainly, if not solely, at the head, the other portions remaining healthy, becoming indurated, or undergoing a fatty degeneration. The disease shows a great tendency to spread to the adjacent lymphatic glands, and a cancer of the pancreas often in reality consists of the transformed head of the organ, so closely blended with these glands as to have occasioned an apparently uniform tumour of considerable size, which, by pressure, produces obstruction of the ducts leading from the liver, or changes in structure in the surrounding tissues.

Scirrhus and encephaloid are both met with in the pancreas, and run the same course as in other organs. Colloid deposits, too, have been described as occurring. The natural structures disappear entirely, and the microscope exhibits nothing but abnormal cells, or else the cancer may be infiltrated through the regular gland-tissue.

The form and size of the pancreas are materially modified by the cancerous disease, especially is the size. Enlargement almost invariably occurs, and the organ may exceed three or four times its natural bulk. Duponchel[a] relates the case of a soldier who died at Cadiz, after a long and obscure disease of the abdomen, and in whom a large tumour, of the size of a child's head, consisting of a brownish matter resembling coagulated blood, and of a broken-down cerebral-like substance, was found occupying the place of the pancreas, of the glandular structure of which not a vestige remained. A mass of similar size occurred in the case of a woman described by Caspar[b].

The pancreatic duct often becomes implicated in the disease. Sometimes it remains pervious, but at others it is entirely obliterated. It may be pervious in the diseased mass, or where it opens into the intestine, while at the more healthy portions of the gland it is obliterated. Again, the reverse takes place; it permits the pancreatic secretion to flow until it reaches the diseased portion of the pancreas, but here and at its mouth it is closed. Cruveilhier[c] met with what appeared to be a cyst in the pancreas, but which, on closer examination, was proved to be the much-dilated pancreatic duct, the duodenal extremity of which was strongly compressed by a scirrhous degeneration of the head of the pancreas. A still more remarkable case happened a few years ago in the clinical wards of Professor Bamberger[d]. The duct, by pressure at a part of its course,

[a] Bulletin de la Societé Méd. d'Emulat., Mars, 1824.
[b] Caspar's Wochenschrift, No. 9, quoted in Canstatt's Jahresbericht, 1844.
[c] Essai sur l'Anat. Pathol., tome i., p. 286. 1816.
[d] Virchow's Path. and Therap., vol. vi., p. 667.

was dilated into a cyst, containing a yellowish-red fluid, of the size of a man's fist. True cysts, however, occur in cancer of the organ; their walls are thin and translucent; their contents may be a bloody serum, or blood mixed with broken-down tissue (Duponchel, *loc. cit.*)

The effects of pancreatic cancer show themselves chiefly on the adjacent organs. Secondary cancers in the brain are not described, nor do the thoracic viscera become often affected. Albers mentions a case in which the lungs were filled with small, yellowish cancerous deposits; Bennett ("Clinical Lectures") one, in which gelatinous-looking masses in the lung proved, when microscopically examined, to be cancer; and it is not improbable that the "pulmonary consumption" in Sewall's case was cancer of the lung, as it did not come on until a long time after the pancreatic disease was fully developed. The stomach, intestine, and liver, from their proximity to the pancreas, are the organs which suffer most. The stomach may be perfectly healthy, or it may be adherent to the pancreatic tumour and thickened, especially near the pyloric extremity. The thickening is due to a simple increase of the normal structure, or to a cancerous deposit in the coats of the organ. The pyloric orifice may be narrowed, and so pressed upon by the tumour as to be nearly obliterated. The mucous membrane of the stomach is found in a state of softening, or of thickening, but for the most part it is perfectly healthy. The viscus may be much distended, or contracted. Its inner surface has been observed to be covered with a dark slimy fluid, or to contain blood, or even as much as a gill of pus, derived from a perforation of its coats, through which the pancreatic mass communicated with the stomach. Such cases of perforation have been several times noticed. The perforation occurs at the seat at which the stomach adheres to the morbid mass; the rupture may be at one or at several places (Hasenöhl).

The duodenum presents the same changes as are met with in the stomach. It may be adherent to the pancreas, thickened and contracted, or distended; its caliber may be nearly obliterated by pressure, its mucous membrane softened, and one or several ulcerations communicating with the pancreas exist in it. The other parts of the intestine generally remain healthy; yet they, too, have been noted to have been greatly contracted, to have been ulcerated, to have contained small cancerous masses, or to have been nearly filled with blood. The colon has been observed to be much contracted, and its coats thickened and covered with small patches of lymph. There seems, indeed, to be a very great tendency to fibrinous deposits, and to an increase and thickening of the cellular textures of the body, as witnessed in the intestines, and also in a cirrhosed state of the liver.

The liver is very variously affected. It remains healthy, becomes the seat of cancerous deposits, or exhibits abnormal changes with reference to size, density, and colour. One of the most frequent ap-

pearances is to find it enlarged, and of a peculiar greenish hue. Dr. Bright, in an oft-quoted case, describes it as resembling "dark greenstone porphyry." It may be softer than natural in consistency, but is frequently denser, owing, in some instances, to a thickening of its cellular tissue. Well-marked examples of cirrhosis have also been observed. In common with all the other organs in the body, it is at times pale and devoid of blood. The biliary ducts may be normal, or have their caliber greatly increased. The hepatic duct, as well as the cystic and common duct, are at times in some parts nearly obliterated, while in others they are much dilated; or one duct is dilated and the other compressed. Again, both the hepatic and cystic duct may be expanded, and the common duct be barely pervious. In a case described by King[a], the hepatic and choledoch duct above the seat of their compression were dilated to the size of the ileum of an infant. Todd[b] had a young girl under his care, in whom the hepatic and common duct were so distended as to form a distinct swelling in the epigastric region, which was tapped during life, and was found to contain several quarts of bile. The cystic duct alone may be closed; but the duct which most frequently suffers is the common duct. It is evident, however, that the exact spot of its occlusion, or the state above the seat of compression of it, or of the cystic and hepatic duct, will depend much upon the shape and size of the pancreatic tumour.

The gall-bladder, in cases of compression of any of the ducts connected with the biliary function, is enlarged and greatly distended. Its coats have been observed to be much thickened, and its mucous membrane slightly ulcerated. Its contents are a dark, inky bile, or an inodorous, colourless fluid, which King tells us has no resemblance in chemical composition to bile.

The other structures situated in the abdomen do not often become affected in consequence of a pancreatic cancer. The omentum may be implicated in the disease; the spleen remains healthy. The supra-renal capsules were involved in a case described by Dr. Bright[c]. The diseased mass may press upon the nerves, and narrow the aorta, as in a case quoted by Mondière from Portal[d]. In another instance, the latter author has observed an aneurism to have been produced by the pressure of a scirrhous tumour of the pancreas.

The age and sex of those suffering from cancer of the pancreas may be seen from the following Table of 37 cases:—

[a] Medico-Chirurgical Review, 1827.

[b] Dublin Hospital Reports, vol. i.

[c] Medico-Chirurgical Transactions, vol. xviii., case 7. It may not be without interest to state that in this case no bronzy colour of the skin is mentioned.

[d] Traité de l'Apoplexie.

Age.	Males.	Females.
14 to 22	–	2
24 to 28	2	1
33 to 36	3	–
40 to 46	4	2
48 to 58	8	4
58 to 68	2	4
68 to 78	–	2
Not stated,	3	–
	22	15

These figures certainly show that cancer of the pancreas conforms, in respect to age, to the general laws of cancerous disease. It will be perceived that the majority of cases occurred after the fortieth year. The youngest was a girl 14 years of age, the eldest a woman of 76. Rokitansky has mentioned an instance of the pancreas having been found scirrhous at birth. With reference to sex, the majority of cases are met with in men. Of the 15 female cases, 2 occurred in coloured women. Dr. Walshe's statements concerning sex do not agree with my deductions. He thinks the disease is more frequent in the female[a].

The exact duration of the affection it is not possible to ascertain. Like all chronic diseases, its commencement cannot be accurately fixed. It would seem that, although it may last for several years, and occasion prolonged suffering, it may also run a more rapid course. It is, indeed, in not a few of the cases specially noted, that the patient had been, up to a certain time—not a year before his death—in excellent health. In several instances, no marked symptoms appeared until four or five months before death; and a case has been reported in which the disease seemingly commenced with acute symptoms, and ran on, in eleven weeks, to a fatal termination. In one patient it was ushered in by jaundice, in another by a febrile attack. In one case it is recorded that it followed a sudden disappearance of tumefaction of the parotid and submaxillary glands; in another, that it was produced by continual pressure against the stomach. Death usually takes place from gradual exhaustion. But it may occur after hemorrhage, or by the development of cancer in other parts of the body, or with the symptoms of an adynamic fever. The patient mentioned by Dr. Campbell expired suddenly, after a sound like something bursting. The stomach had been perforated, and was found to contain a large quantity of pus.

The symptoms of cancer of the pancreas are not always the same; they are mostly produced by the effects of the disease on other organs. The affections of the pancreas themselves give rise to few, if any, special symptoms; to none which are constant.

[a] Walshe on Cancer, p. 321.

Local Signs.—Amid the local signs, one of the most important is the existence of a swelling, or a tumour. In 13 cases out of the 37 recorded below, a tumour is specially noticed; in 1 there was fulness at the epigastrium; and in 1, at the left hypochondrium; in 1, fulness at the epigastrium with resistance to touch; in 1, an indistinct hardness at the pit of the stomach; and in another, at the right side of the abdomen: making 18 cases in which the pancreas had given rise to perceptible signs of its enlargement. The situation of the tumour is mostly noted as in the epigastric region, or between this and the umbilicus. It may extend into the right hypochondrium, or into the left, or into both. It may be fixed or movable, with limits not definable, or capable of being accurately determined by the touch and by percussion. In some instances it is painful on pressure; in others, not. In several very interesting cases it was accompanied by pulsation and a blowing sound, and might thus have been readily mistaken for an aneurism. In Dr. Battersby's patient there was an apparent systole and diastole; the pulsation ceased in two months, but the bruit and the tumour remained. In the patients of Sandwith, Fletcher, Tessier, and M'Clurg, the pulsation continued as a permanent phenomenon. Both pulsation and blowing sound may be accounted for by the tumour lying across, and compressing the abdominal aorta. In Dr. Battersby's case, however, the blowing sound may have been produced by the deposits which covered the inner coat of the abdominal aorta.

An epigastric tumour of a different nature may be caused by disease of the pancreas, and lead to singular errors of diagnosis. Petit[a] operated on a case of what he thought to be a strangulated hernia of the stomach or colon. The tumour was soft and compressible, and accompanied by vomiting and hiccough. The operation demonstrated that it was the stomach, pressed forward by an enlarged pancreas, whether cancerous or not, was not determined. In another case, already cited, an epigastric tumour was not the cancerous pancreas itself, but a dilatation of the hepatic and choledoch duct produced by it.

Pain is a very constant symptom; it is mentioned in 32 out of 37 cases. The seat of the pain is, in most instances, the epigastrium. In 20 of these 32 cases it seems to have been there most marked, although it was not always confined to this seat, but extended to the right side, or to the left, or to the back, or to the umbilicus and lower part of the abdomen. In one case it was an intermitting pain, confined to the lower part of the abdomen. In two or three others it extended equally over the whole abdomen. In four cases it had its seat of greatest intensity in the back, but in one of these there was also deep-seated epigastric pain, a constant pain in the lower part of the abdomen, and pains extending to the arms. In another case they radiated to the left half of the chest, and to the abdomen.

[a] Discours sur la Médecine du Cœur. Lyons, 1806.

In three cases the pain was mainly felt in the sides, and extended into the back.

The character of the pain is very various. In the majority of the cases it is severe, in some excruciating, and in paroxysms of several days' duration. It is, at times, much like colic; or again, it is described by the patient as "a deathly distress," or, as a "hot sensation extending into the back." In some cases it is very slight, more of an undefined uneasiness than actual pain. In Andral's patient at La Pitie[a], the pains were like blows of a hammer, or like the perforating dart of a dagger, and increased at night. The pancreatic tumour was found, on post-mortem examination, to have compressed the nervous plexus which spreads around the abdominal aorta. The pain is not, as a rule, increased by taking food, for this is only noted in very few of the cases; on the other hand, there are instances in which it is specially stated that it was not. The pain may become duller as the disease advances; it may or may not be increased on pressure. It may be suddenly augmented by turning in bed from side to side. In not a few cases is it increased by the erect position, and hence we find patients seeking relief by stooping, and curving their body forward, so as to relax the abdominal parietes.

Vomiting is a symptom the frequency and importance of which it is difficult to determine, for it is obvious that in those cases in which much disease of the liver or cancer of the stomach were superinduced, it cannot be established in how far the symptom may be placed in connexion with the disease of the pancreas. In the thirty-seven cases noted, vomiting is mentioned in twenty-one; but in two of these it was a transitory phenomenon, lasting a very short time, and occasioned in one by eating indigestible food. In one case it came on after an attack of hepatitis, which happened seventeen years before any symptoms of pancreatic disease developed themselves; in three others, it occurred in patients in whom considerable disease of the liver and stomach was, after death, detected. Leaving out these six cases, we still find it in fifteen. In nearly all of them it was a late symptom, and in only a few constant. In one patient it did not appear until six weeks, and in another not until ten days before death, although in him the pylorus was found greatly contracted. The narrowed state of the pylorus, caused by the pancreatic disease, or the pressure of the tumour on the stomach, will explain the vomiting in several instances. In a case mentioned by Dr. Henry Lee[b], at the Royal Medico-Chirurgical Society, in which vomiting was among the symptoms, the stomach was perforated by the head of the pancreas, which had produced ulceration by pressure. In another case, in which ulceration of the stomach occurred, nausea and vomiting became prominent symptoms as the pancreatic tumour increased. The vomited matter consists either of the food that is swallowed (in many cases there is neither nausea nor vomiting until

[a] Lancette Française, No. 16. [b] Lancet, 1842.

shortly after food be taken), or else of a substance like bran and water, of a bilious fluid, of fluid of a glairy character, or of a watery, colourless fluid; or, again, the ejection may contain blood. The watery fluid that is sometimes discharged may be very abundant. It is thought by some to be the pancreatic secretion itself, and not to be derived from the stomach at all; others regard it as an increased salivary flow. The vomited matter is stated in one case, in which the pylorus was greatly contracted, to have been like coffee-grounds. But the coffee-ground vomit, so often seen in cancer of the stomach, is evidently here but exceptionally met with. In the case kindly communicated to me by Dr. Harris, there was in the vomit a distinct blackish sediment. This was proved to be stove coal, of which the patient was in the habit of consuming daily about half a pint, eating it in the form of cinder.

The condition of the bowels is usually that of constipation. In thirty-four cases, constipation is mentioned in nineteen; in four the bowels were regular; in three diarrhœa occurred as a late symptom; one patient passed blood and pus by stools; two others, at times blood; in the other cases diarrhœa existed, or alternated with constipation. The fæces are mostly hard, and vary in colour according to the presence or absence of the biliary secretion. Hemorrhage into the bowels, which has been observed as occurring in several cases, will explain the black, bloody stools sometimes voided. Dr. Bright has directed attention to the presence of fatty stools in cases of pancreatic cancer which he has published (*loc. cit.*); they were noticed in three cases; but he is far from having affirmed, as subsequent writers wish us to believe, that they are of constant occurrence. He himself speaks of cases of scirrhous pancreas without fatty discharge; and, although he thinks that it is connected with "disease, probably malignant, of that part of the pancreas which is near to the duodenum, and ulceration of the duodenum itself," he does not, by any means, lay this down as positive, since, at the end of his paper, he suggests that the symptom might be diagnostic "of the nature of the diseased action rather than of its seat." Many observers have since brought forward instances of fatty discharges in which no disease of the pancreas existed; and, on the other hand, to the cases of Bright but few others have been added in which these discharges were associated with affections of this gland[a]. A desire to bring the physiological teachings of the present day in connexion with morbid anatomy may have prompted many to accord so much importance to the occurrence of fatty stools in pancreatic disease. But pathological anatomy seems to contradict the assertion that the

[a] Dr. Eisenmann, "Vierteljahrschrift für die praktische Heilk." 1853 (quoted in the Medical Examiner, 1855,) speaks of several cases of pancreatic disease, with abundant fatty discharge, but in the case which came under his own care there was none. In some of the instances quoted the oily evacuations had ceased, although the pancreas was so indurated as to have rendered the performance of its function impossible.

pancreatic secretion possesses alone the power to emulsify, and to render the fatty matters fit for absorption. It can certainly not be the only agent. The cases of Dr. Bright would lead rather to the conclusion that, for fat not to be acted upon, the duodenal secretions must also be vitiated, and the flow of healthy bile interfered with. For in all of them there were also ulcers in the intestine, and the ducts through which the bile flows were compressed, or nearly obliterated.

Jaundice constitutes, in a large proportion of cases, one of the most prominent symptoms; it is persistent, and resists all treatment. In most instances it does not appear until the pancreas has enlarged considerably—in other words, not until late in the disease; but in a few cases it is noted among the early signs. It usually increases as the disease progresses, and the skin becomes of a deep yellow, or of a greenish hue.

Dyspeptic symptoms are a class of symptoms which are found in pancreatic cancer, in a very varying degree. From the vague manner in which the term is made to embrace different states, it is difficult to ascertain the exact nature of these symptoms in the reported cases. They are noted in twenty-five out of thirty-seven cases, some as of early, some as of late occurrence; but of these twenty-five cases there are several in which the signs of indigestion had been evidently present at a time long anterior to the other symptoms of the disease, and probably to the disease itself. Acid eructations were troublesome in five cases; in two cases there was much pain after eating; in five cases there was considerable flatulency, incontrollable in one, but not dependent upon taking food. A feeling of weight and oppression at the stomach are noted in three cases; of sinking, relieved by food, in one; of great irritability of the stomach in two. Constant thirst is mentioned in six cases, but in one of these diabetes existed.

The appetite fluctuates in every conceivable way; it frequently remains good even to the last; it is sometimes capricious, although the patient can take a great deal of food. Anorexia is noted in seven out of the twenty-five cases in which dyspeptic symptoms are mentioned. Hiccough was in two cases an exceedingly annoying incident. The tongue is not often alluded to, from which it may be inferred that it does not often present any peculiarity. It is stated in four cases to have been dry; in two it was covered with a yellowish coat; in one, with a brown fur; it remained clean throughout in one; and its cleanness and great moisture are especially commented on in two interesting cases. The ptyalism, which sometimes takes place, will give rise to this macerated appearance of the tongue: but, although it may be both very abundant and exceedingly offensive[a], the occurrence of this salivary discharge is not frequent, and

[a] Mondière, Archives Générales de Médecine, 1836.

its importance in diagnosis, therefore, less than some authors state it to be.

Dropsy is met with in the advanced stages of pancreatic cancer. It was present in sixteen out of thirty-seven cases; yet, although many of these were complicated with hepatic derangement, in none was it very marked; in most, ascites was present; in some, ascites and anasarca; in one case, marked anasarca of the upper and lower extremities, and only slight ascites; and in another œdema of the feet was seen disappearing and reappearing.

Emaciation and debility are both very striking and constant symptoms. The emaciation is great and progressive. In a case reported by Sandwith the patient was so emaciated that the spine could be distinctly traced through the abdominal parietes. Debility usually goes hand in hand with the perceptible loss of flesh, but it may not be as extreme; and, again, it is sometimes prominent among the earlier symptoms. In exceptional cases the loss of flesh is slight, and debility not marked. The countenance is usually pallid, and has a distressed look; the features become pinched, and the face is expressive of suffering and anxiety. The skin is sallow, of a bloodless hue, or jaundiced, or more rarely it is straw-coloured. The pulse is not often noted; when it is, it is stated to have been quicker than in health. A tendency to hemorrhage must also be alluded to; blood was lost from the stomach, bowels, and lungs, in several cases.

The main symptoms, then, of pancreatic cancer are a tumour in the epigastric region, pain there or in the back, constipation, progressive emaciation and debility, and obstinate jaundice and occasional vomiting as the disease advances. The diagnosis is possible if these symptoms be present, and provided we are able to exclude with certainty the diseases of the stomach and of the liver. I shall not attempt to decide in how far the symptoms may be shared by other chronic affections of the pancreas. Tubercle of that organ is rare, and is associated with tubercle of the lung or of the brain[a]. Chronic pancreatitis gives rise to many of the same phenomena; but, taking the cases which I have met with in pursuing this inquiry as my standard, I should say that those signs which indicate a tumour, and the symptoms which show its marked growth and pressure upon other organs, are not often present; that pain does not occur to such a marked degree; that the falling off in health is very gradual, and the disease slower of progress; and also that the bowels are not as constipated, but are, on the contrary, more frequently relaxed. It is, however, fair to state, that Dr. Claessen, in a work on Diseases of the Pancreas (Cologne, 1842), remarks that constipation in chronic pancreatitis is urgent and enduring.—*Proceedings of the Pathological Society of Philadelphia.*

[a] Würtemberg. Med. Correspond. Blatt.

On the Use of Opium, or rather of Morphia, in small doses, in Hooping-Cough. By Dr. C. M. Müller, of Berlin.

The idea of employing morphia in the hooping-cough of children was suggested to me by the perusal of an essay published in the Medico-Chirurgical Transactions for 1854, by Edward Smith, of Edinburgh. In this paper the author endeavoured to show that when death occurs in hooping-cough, the fatal result is usually due to bronchitis, and is not produced in the mode in which it ordinarily takes place in the so-called zymotic or acute diseases, depending on a poisoned state of the blood, scarlatina, measles, small-pox, &c. It is possible that hooping-cough may have a certain degree of affinity with these diseases. Many circumstances favour such a view, particularly the facts that it usually occurs only once in life; follows a definite typical course, divided into stages of increase and decline; and, finally, the examples of communication by contagion which have been brought forward. The latter may, however, be deceptive, since, as is well known, under our social circumstances, the occurrence of contagion, for which direct contact is not absolutely necessary, cannot easily be proved with certainty; and, on the other hand, we are aware of the absence of all so-called crises, or critical excretions, which occur so decidedly and characteristically in scarlatina, measles, and small-pox, particularly through the skin and kidneys, and also through the mucous and serous membranes. But to establish a connexion between hooping-cough and these diseases, we should be able to prove intoxication of the blood. Such proofs are, however, wholly wanting. We see no particular affection of the skin, no specific derangement of the kidneys, no indication of cachexy or dyscrasia. What we do see is pre-eminently a peculiar nervous affection connected with bronchitis; and did I venture on a systematic nosology, I should be rather inclined to place hooping-cough either among intermittent fevers, or in the great class of neuroses to which epilepsy, chorea, &c., are referred. In the treatment of hooping-cough we must bear the nervous element prominently in mind. To this we are compelled, whatever theory we may hold in respect to the disease. If we succeed in removing that which distinguishes pertussis from an ordinary bronchitic cough, or, in other words, if we succeed in changing the affection into a common catarrhal cough, we are content. We consider then that our work is done; and yet what is removed is nothing more than the purely nervous element. Experience has shown that all the influences which are capable of stimulating and increasing the renal function act favourably on hooping-cough,—as fresh air, a regulated diet, attention to the bowels, &c. Having in the latter point of view duly acted on the liver and intestinal canal, we must now endeavour to exercise a direct influence on the peculiar affection of the nerves, which presents itself in hooping-cough. Mr. Smith, whose essay I have mentioned, is quite of the same opinion, and, as I have done, has directed his

attention, not to belladonna or hemlock, aconite or henbane, but to morphia. I consider that none of these narcotic remedies is so much to be relied on as morphia; and belladonna, moreover, to be dangerous. "I endeavoured," says Mr. Smith, "to ascertain in what doses morphia may be given to children without affecting the head, and how far the dose may be continued. In these investigations I did not consider it advisable to proceed too slowly and cautiously, and I therefore increased the dose steadily until I had attained the maximum. If I had begun with the sixty-fourth part of a grain, as I should do with a child of four months old, I would by degrees give an additional dose, and at last administer three or four doses together every four hours; and if no drowsiness came on, I would augment the dose to one forty-eighth part of a grain, and go even still further, until a slight degree of narcotism should be produced. But if the slightest degree of narcotism or drowsiness occurred, I would, for two days or less, adhere to the dose I had attained to. Under this treatment the spasmodic hoop gives way, and, after three to ten days' use of the morphia, will have entirely disappeared, while the cough will have assumed an ordinary character. In many cases I found an evident improvement even on the second day, and on the fourth the hooping-cough had quite lost its specific character. I do not consider it necessary that the morphia should always be given so far as to affect the head, but the dose must be at least once increased to that point, because only in this mode can the measure of the influence of the remedy be obtained."

I have in my own practice obtained precisely similar results. I have commenced in very young children with the sixtieth part of a grain of morphia, and have increased the dose to the fortieth, or even to the thirty-sixth part of a grain, until a slight degree of narcotism or drowsiness has been manifested, and I have then persevered with the same dose until the hoop has quite ceased. My experience of the remedy is such as to enable me conscientiously to recommend this mode of treatment to my colleagues; and what Mr. Smith says on the subject is likewise very encouraging:—

"In hospital and private practice," he says, "I have repeatedly used morphia in hooping-cough, and always with a satisfactory result." It is, however, necessary, as Mr. Smith also points out, that the diet and state of bowels of the children should be strictly attended to. It will be necessary to combine with the morphia treatment, according to circumstances, the use of aperients or of tonics. Attention must also be paid to the due ventilation of the rooms in which the children are kept.—*Journal für Kinderkrankheiten*, November and December, 1857, p. 315.

Retrospect on the Use of Raw Meat in the Diarrhœa of Weaned Children (Diarrhœa Ablactatorum). By DR. J. F. WEISSE, Director of the Children's Hospital at St. Petersburgh.

SEVENTEEN years have now elapsed since I first directed the attention of the profession to this invaluable remedy in the above disease[a]; but it was not until I had five years later treated of the subject at greater length[b], that it came into more general use. Soon after the publication of the latter paper I received from the esteemed editor of the Journal just now quoted, Dr. Behrend of Berlin, a letter containing the following passage:—"You have no idea what interest your communication on diarrhœa ablactatorum and on the use of raw meat has excited; we now use the remedy extensively."

Not long after, Dr. Behrend inserted in the sixth volume of his Journal a letter of M. Marotte, Physician of the Central Bureau of the Parisian Hospitals, from which it appeared that this subject had attracted great attention also in the French metropolis. The author of this letter, which is addressed to Dr. Trousseau, has moreover had the kindness to suggest a theory explanatory of the results I have obtained. From this time the meat cure was generally received, and its utility admitted on all sides. Of the numerous favourable reports recently published, I cannot forbear literally transcribing that contributed by Dr. Eichelberg, because the author has given to the subject the appreciation it deserves. He says:—"In consequence of the shortness of the time which has elapsed since this article of diet was first recommended, I have, it is true, only a limited number of observations (somewhat more than twenty) before me, but they all corroborate the remarkable advantage of the plan proposed. It is only in exceptional instances that such children refuse raw meat—the great majority, in fact, consume it with manifest relish. I have observed two very striking cases where the children for several weeks readily partook of this food with the most beneficial results, and at the end of that time suddenly refused it. Natural instinct seems in such examples to be unmistakable, as in the case of sick dogs, which eat grass. The want of osmazome made the children greedily consume the raw meat, but, with the cessation of the want, the desire for that principle disappeared"[c].

As Herr Eichelberg, moreover, has expressly indicated the diarrhœa which sets in soon after the weaning of children (according to my observations usually in two or three weeks after that event), as the affection in which the raw meat cure is attended with certain success, so I have also, in recommending this mode of treatment, confined myself to the same disease; and now, after nearly twenty years' experience, maintain, that raw, scraped beef, to the exclusion of all other medication, is a true specific in this destructive diar-

[a] Oppenheim's Journal f. d. gesammte Medizin, Bd. xiii., page 393. Hamburgh: 1840.

[b] Journal f. Kinderkrankheiten, Bd. iv., pp. 99–104. Berlin: 1845.

[c] Ibid.

rhœa. I therefore consider a remark made by Charles Hogg, in recommending the well-known "beef-tea" of the English, to be quite erroneous. Thus he says:—"Beef-tea is an excellent, nourishing, and easily digestible article of food, and completely replaces the juice of meat recommended by Weisse of St. Petersburgh, obtained by scraping raw flesh"[a]. I have in raw beef discovered, not an article of food for children, but a remedy against the diarrhœa in question; nor have I spoken of the juice to be obtained by scraping meat, but the muscular substance itself must be given to the children, having, however, previously been sufficiently comminuted, either by scraping with a knife, or by means of a grater, in order that it may be swallowed without trouble. But the principal point is, that the muscular substance itself, and not merely its juice, should be conveyed into the digestive tube. The English beef-tea has as little beneficial effect on diarrhœa ablactatorum as Liebig's excellent decoction of meat. Both these fluid aliments appear, precisely because they are fluid, to pass too quickly through the intestinal canal; while the meat in substance remains longer in the tube, and by its mechanical irritation may stimulate digestion, and it may, perhaps, also neutralize the acridity of the gastric juice. Nor can I participate in Dr. Beer's sanguine hope, that raw grated beef may be destined one day to dislodge cod-liver oil from the Materia Medica[b]. Each of these excellent remedies has its definite sphere of medical action in the diseases of children: raw beef in the diarrhœa ablactatorum, cod-liver oil in rachitic affections, with and without atrophy.

In St. Petersburgh the meat cure in the affection of children under consideration has become, so to speak, completely naturalized; and this has taken place rather through oral communication, and in consequence of the favourable results of the treatment, than from any paper or essay, as I have never published anything in that capital upon the subject. Most of my colleagues have now for several years made use of it, and they all assure me that they have obtained very satisfactory results, even in cases where the employment of other established remedies appeared to hold out no hope of cure. I have myself seen this treatment adopted in about two hundred children, and, in the majority, with the desired effect, provided recourse was had to it at the proper time. I say, at the proper time, for if the disease has already advanced too far, and, particularly, if it has assumed the form of the so-called gastro-malacia, it is only in exceptional instances that we shall obtain a cure. But even in this case there is no other remedy so calculated to allay the most tormenting symptoms, the tantalizing thirst, and the vomiting, as the raw beef. This beneficial effect is produced even after a few meals.

[a] Journal f. Kinderkrankheiten, Bd. xiv., p. 113, in the notice of Hogg's treatise "On the Management of Infancy," &c.

[b] Ibid., Bd. xiv., p. 238.

But it has recently been stated, as I have already publicly remarked[a], that in many children saved by the meat cure, tape-worm, and it is worthy of note, always the tænia solium, that is precisely the species which is not indigenous in St. Petersburgh, has shown itself. A Dr. Braun[b] has felt himself called upon to question this statement; two years later, however, an undoubted authority on this subject appeared in favour of the facts reported by me. Professor D. von Siebold, of Munich, says, in the last page of his interesting work, "Ueber die Band und Blasenwürmer," Leipsic, 1854: "We can no longer be surprised, or consider their statements fabulous, when physicians report that tape-worms have been found in certain patients after the use of raw meat prescribed as a remedy;" and in the note upon this passage he adds:—"Compare on this subject Weisse's communications, which, notwithstanding Braun's objections, are worthy of all credit." Herr von Siebold directs particular attention to the fact that in every instance it was the tænia solium which was passed; and he considers it probable that this species of tape-worm, which is not indigenous in St. Petersburgh, may have been conveyed thither in the undeveloped state in the flesh of oxen, brought from Tscherkask and Podolia.

Only a few weeks before my departure from St. Petersburgh, in June of the present year, a tape-worm, more than four feet long, was sent to me by a colleague, to whom I had warmly recommended the meat cure in the case of a child, aged eighteen months, who had suffered from the diarrhœa in question, and was already very much run down, which worm was passed after the use of the ethereal oil of male fern. This remedy was administered in consequence of the child, who had long ceased to get the raw meat, and was cured of the diarrhœa, having repeatedly passed joints of tape-worm. The attendant physician had already correctly diagnosed the worm to be the tænia solium; I found that it was voided with the head, on which the suckers were plainly distinguishable under the microscope.

I should not omit to state, that in the Children's Hospital under my care, in the diarrhœas of older children, into which the element of dentition no longer enters, and which so largely contribute to fill the lists of mortality, raw meat has been repeatedly and unsuccessfully tried. These cases of diarrhœa generally depend upon ulcerations in the intestinal canal.

Lastly, I may be allowed to call the attention of the meeting to as palatable a remedy as raw beef, in the lientery of adults; I allude to oysters. In two cases, an amount of experience, which, I must admit, goes for nothing, I saw the patients cured by the moderate use of these mollusca. From eight to twelve oysters were taken daily in two meals.—*Journal für Kinderkrankheiten*, January and February, 1858, page 60.

[a] Journal f. Kinderkrankheiten, Bd. xvi., p. 384. 1851.

[b] Ibid., Bd. xviii., p. 78, 1852: and in Froriep's Tagesberichten, 1852.

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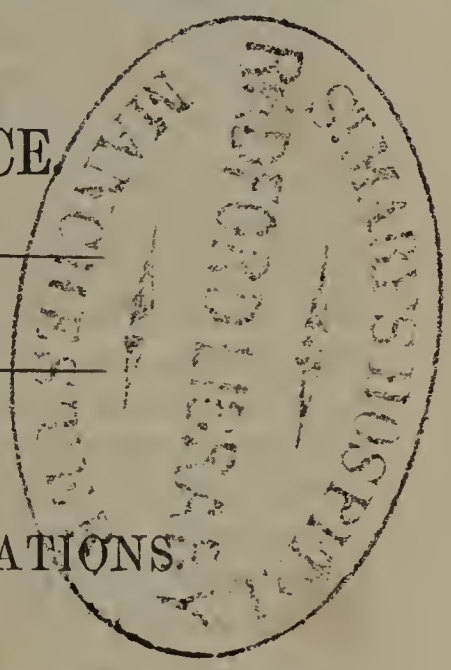


PART I.

ORIGINAL COMMUNICATIONS.

ART. XI.—*The Cerebro-spinal Symptomatology of Worms, especially Tape-worms.* By THOMAS P. HESLOP, M. D., late Senior Physician to the Queen's Hospital, and Professor of the Practice of Physic, Queen's College, Birmingham.

THERE is, certainly, no disease of equal frequency and equal importance with vermination, the symptomatology of which in the human subject is less understood. The natural history of parasites, both as regards entozoa and ectozoa, has greatly advanced of late days. The relations of the cystoid and cestoid entozoa to each other, in different species of animals, and at different periods of their evolution, have been worked out with a success which seems to leave but little for the future investigator in a branch of natural science hitherto a puzzle to the philosopher, and a stumbling-block to the theologian. Just as we have arrived at more exact knowledge about the cause of the disorder vulgarly termed "worms," so have we become greatly aided by the traveller in our efforts to cope with the malady. We have far more numerous and effective instruments for obtaining the expulsion of these parasites than were known to scientific medicine among our forefathers. Hence the natural history of the disease, so far as the specific

determining cause is concerned, and empirical therapeutics have greatly advanced, though with unequal steps, while the intervening parts of the history have not only not advanced, but very manifestly retrograded from the point at which they had arrived before the epoch of modern rational medicine. Vermination does not offer the only instance in our times of a forgetfulness of the general relations and vital reactions of diseases, and a too exclusive absorption of the attention upon certain so-called "physical" signs and etiological subtleties. The result is, that even experienced and acute observers have waited for the appearance of a worm in the clothes or the evacuations of the patient, before they have had a suspicion of the real nature of certain grave and remarkable associated symptoms, for whose relief they had been consulted. Yet, these symptoms are so uniform, their physiognomy so striking, their peculiarities so nearly pathognomonic, that they become veritable signs—almost certain indices—of their causation, when scrutinized by a well-instructed physician. These observavations will appear still more worthy of consideration if we reflect that the symptoms belong to a disorder which does not appear to tend naturally to a termination—the tendency to reproduction, and, consequently, to permanence, being a very plain character of the affection, even, probably, under such improved conditions as might have prevented the development of the worms, had they existed at the beginning. We have, moreover, an additional incentive to take every care, in order to effect a correct diagnosis, insomuch as that being once arrived at, the complete restoration of the patient from all his troubles may be fairly predicted as the result of our efforts.

In these observations I particularly allude to the verminous affections of the adult, for it would scarcely be consistent with experience to state that they do not occupy a sufficient place in the minds of the medical attendants when treating infantile disorders. The contrary is, indeed, the case, for the tendency here is rather to exaggerate their frequency and importance than to diminish them—rather to seek in worms a solution of all difficulties, than to forget their existence.

I have thought it desirable to place a series of cases before the reader, so that the general nature of the symptoms produced by them may be well studied, previous to offering a view of the present knowledge of the subject and of my own opinions. It will be observed that the special object of this Paper is to illustrate the aberrations of function appertaining to the nervous system; and, though many of the cases will contain allusions to other branches of semeiology, yet, as those

particular deviations from the healthy state have occupied my chief attention, owing to the want of their appreciation on the part of the great majority of modern writers, the bulk of the reports will be limited to their description.

The number of these cases will, doubtless, surprise those living in localities where tape-worm constitutes a very rare disease in man. Let me at once state that in this town it is common to a degree that never fails to produce astonishment in the minds of strangers. I am not in a position to give an opinion upon the origin of this frequency, but the fact is unquestionable. I only here give an abstract of an inconsiderable fraction of the whole number of cases which have been under my observation during the past ten years; but they will be, probably, deemed sufficient to warrant positive conclusions in reference to the object of this essay.

Case I.—Anne Boswell, aged 43, married, admitted a patient of the Birmingham General Dispensary, October 20, 1853. Has had fourteen children Complexion florid; looks robust. States that, when young, she was very hysterical. As a rule, she has meat twice a week; her dinner ordinarily consists of bread, potatoes, and occasionally of cabbage. For the last two years she has passed almost daily pieces of tape-worm, but does not believe she ever suffered from worms previously. During this period she has suffered intensely from occipital and frontal cephalalgia and from giddiness. Sleeps badly, from the pain in the head. States that she feels "stupified," and staggers as she goes along the street; and, even in moving about the house, is often compelled to lay hold of objects for the purpose of steadying herself. During the attacks of giddiness, which are often associated with feelings of faintness, her sight seems to leave her, and she experiences sensations as of webs before her eyes; she has likewise frequent tinnitus aurium, and suffers greatly from tremors in the arms and a general feeling of weakness. Bowels generally open once a day; passes a large quantity of pale urine. Ordered kousso, with tonics and salines.

October 24th. An hour and a half after taking the kousso she began to pass some pieces of tape-worm, varying in length from separate joints to several yards. She brought me a half-pint bottle half filled with the parasite, and stated that she had passed three times as much. The expulsion of portions of worm lasted for twenty-four hours, when it quite ceased. Her head feels lighter, sight clearer, giddiness and tremors less; pulse about 80, soft and small; skin perspiring.

27th. Has seen no worms since; giddiness diminished;

tremors less, but complains of the headach being as bad as ever. Scarcely sleeps at all at night. Ordered a turpentine draught.

31st. Giddiness less; tremors much better, but the cephalalgia is as bad as ever; sleeps very badly; vision as before; nothing stated of further expulsion of worms. Ordered ammonia, bicarbonate of soda, tincture of hop, and infusion of calumba.

Case II.—Mary Butler, aged 39, applied to the Dispensary, October 24, 1853. Has had three children. States that she first began to suffer from tape-worm six or seven years ago, and, during this period, has almost constantly passed pieces of flat worm with her motions. She sometimes suffers from pain in the stomach, but rarely vomits; no thirst or epigastric tenderness; appetite bad; bowels open daily; tongue clean, fissured in the centre; pulse about 74, soft; skin perspiring; catamenia regular and profuse.

Her chief complaint, for which she has applied to the charity, is intense headach, pretty generally diffused over the head, and which is accompanied by a sense of beating; suffers from extreme giddiness, so that she is constantly obliged to sit down; eyesight occasionally leaves her. Ordered a draught of turpentine and castor-oil, and a mixture of sal volatile, compound tincture of bark, and infusion of cascarilla.

October 27th. States that the turpentine made her feel very ill and sick, but soon after taking it she began to pass large quantities of tape-worm, for the most part in single joints, but some pieces extending to one or two feet. The draught operated twice, the second motion being about an hour after it had been taken. Giddiness less; cephalalgia much better.

31st. Giddiness and tremblings less; sight much better; pain in the head, until yesterday, much better, when it returned, and continued until this morning; bowels open every day. The kousso was now ordered, but no further report of the case appears.

Case III.—Jane Fox, aged 38, married, has had seven children. Four years ago first passed worms, and almost continuously since that time. The bowels have usually been very costive. The same month that she first noticed the worms she suffered from fits, in which she struggled and lost her consciousness; she had several fits, one after another, but never since. Has suffered constantly from heaviness and pain in the head, and always felt a tendency to sleep during the day. Has experienced great giddiness and general tremors; taste indifferent; smell vanished; sight impaired. All these symptoms

appear to have come on about the same time. Catamenia regular, but scanty. Has taken much medicine for her symptoms, but without the slightest relief. Her attendants do not appear to have treated her for the worms, with the exception of one physician, who administered a dose of turpentine, with the effect of bringing away some flat worm. Has suffered much from indigestion and flatulence. Ordered potash solution, rhubarb, and quassia infusion, and a colocynth pill with hyoscyamus every night and morning.

21st. Ordered kousso and an alkaline tonic mixture.

28th. It is reported that the kousso operated, but there are no further details of the case.

Case IV.—E. G., a married woman, about thirty-five years of age, sent to me by Mr. Sharman, labouring under flatulent distention of abdomen, simulating pregnancy, for which she had long been anxious. The headach and giddiness were strongly pronounced, together with hypochondriasis and hysterical tremblings; face extremely pale; catamenial function irregular. She had long passed pieces of tape-worm. Anthelmintics were prescribed, and partial relief followed.

Case V.—S. D., aged 27, single, applied to the Dispensary in May, 1854. Complained seven years ago of violent pain in the forehead, extending underneath and around the eye, the pain coming on about 8 o'clock in the morning, and lasting until 1 o'clock. This state continued for a fortnight, when she had a fit, for which she was bled. She was at this time subject to giddiness and dimness of vision. Previous to this period she had suffered occasionally for several years from fainting fits. After twelve months she had a return of the giddiness, dimness of vision, singing in the ears, but never had a return of the fit. Declares that during the last seven years she has had about twenty distinct attacks, similar to those described, and has been bled five times. Thinks she has fainted forty times. States that she has passed worms constantly for twelve months. On application, her chief complaints are giddiness and violent pain in the left side of the head, lasting all the morning; catamenia regular.

Kousso ordered, with the effect of bringing away, in two hours and three-quarters, a large quantity of flat and round worms. A dose of castor-oil was administered, which brought away more flat worms in large quantity.

Case VI.—A. S., aged 32, has had three children, and two miscarriages. Applied April 25, 1854, complaining of fits, the first of which had been followed by the loss of the use of the right upper and lower extremity. This she gradually re-

covered, but has been subject to giddiness, impaired vision, and headach. These symptoms being strongly marked, she was ordered, May 25, a draught of turpentine and castor-oil, after taking which, detached pieces of tape-worm were evacuated.

June 1st. States that the head symptoms are relieved, though she is occasionally subject to them. Has not had a fit since the worms were passed.

Case VII.—H. T., aged 26, applied to the dispensary, April 18, 1854, labouring under menorrhagia. She has had one child, and had five miscarriages.

May 1st. Complains of violent pains in the abdomen and back, headach, noises in the ears, and impaired vision. Ordered kousso, three drachms. It did not evacuate pieces of tape-worm until next day, when "a quantity" was passed.

29th. Head symptoms have reappeared. Ordered a turpentine and castor-oil draught, which was vomited. No more worms have passed.

June 1st. Has pains in all her limbs, headach, giddiness, but is free from noises in the ears or faintings. Sight unaffected.

I shall now give a collection of cases which have occurred to me in the Queen's Hospital, and first I shall present those which have applied as out-patients. These will be merely condensed summaries of the facts, such as are necessarily taken under these circumstances.

Case VIII.—M. F., aged 8; October 29, 1852. Is daily troubled with worms; said to be "small white worms." Suffers every day with pain in the head. No tenderness over abdomen, or cough.

Case IX.—E. F., aged 39; March 9, 1853. Suffers from pain in the head, and occasionally feels giddy. Has felt low for some weeks. Bowels regular; appetite bad; has had five children; for the last month she has suffered from tape-worm.

Case X.—S. C., aged 7, a boy; November 6, 1853. Was an out-patient some time ago with pertussis. He is now suffering from pain in the head, cough, debility, and tenderness of the abdomen. Bowels confined; voids long, round worms.

Case XI.—J. L., aged 18, a man; February 5, 1853. Has passed thread-worms for two or three years, and has had itching about the anus. Ordered an aloetic purgative.

19th. Has passed some ascarides. Bowels confined; ordered turpentine and castor-oil.

23rd Has passed a quantity of flat worms.

26th. Still passes worms; feels giddy, and complains of headach and heaviness over the eyes. Ordered another draught of turpentine.

March 5th. Is much improved, and has seen no more worms.

Case XII.—E. C., aged 14, a girl; February 19, 1853. Complains of much pain in the abdomen, also during and after micturition. Bowels confined; never had fits; talks in her sleep. Ordered a purgative with steel.

23rd. Has passed a large quantity of lumbrici since last visit. She passsd tape-worm when about six years old.

26th. Is much better; has passed no more worms. Later reports state that the pains in the head and giddiness are better, though these symptoms had not previously been mentioned. Worms were not again passed.

Case XIII.—H. S., aged 47, a married woman; March 26, 1853. Has been subject to fits for two or three years. Has generally had them once a fortnight, and since they have appeared, has been subject to lumbrici and ascarides. Is troubled with frontal headach and dimness of vision; thirst; no pain after eating. She does not appear to have passed worms during the last three days. Powerful purgatives and turpentine failed to bring away worms, but much relieved all her symptoms, although a fit is reported to have taken place on the 15th of April.

Case XIV.—A. G., aged 32; March 14, 1853; a woman. Applied for relief of palpitations, pain in the head, and leucorrhœa. Is very anemic, and has suffered for a long time from night-sweats. Has had one child, nine years ago.

30th. On this day she was ordered a terebinthinate draught, in consequence of her statement that ten days previously she had passed some flat worms in pieces, which were also passed after taking it. It appears that two years ago she had two fits, three weeks intervening between them. About nine days after the second fit, she passed a flat worm, nearly, as she states, twenty yards long. She experienced on Sunday last similar symptoms to those she had previously felt before the fits came on: namely, numbness in the legs and arms, momentary forgetfulness, and cephalalgia. The effects of the remedies have been highly satisfactory. The cephalalgia and vertigo are greatly relieved, and she feels no numbness. Tongue clean; skin moist; pulse regular; leucorrhœa diminished. Ordered another draught.

April 6th. Much better.

May 11th. Discharge less; giddiness less; and is altogether better.

Case XV.—S. H., aged 38, married; April 13, 1853. Complains of pain in the side and bowels, which are confined, and of vomiting almost immediately after taking food. Passes flat worms every day. Ordered a turpentine and castor-oil draught.

May 18th. The draught was thrown up, and produced no other effect. Has had giddiness during the last few days. Never had fits; no tinnitus aurium. She says the pain is now on the right side; pulse feeble; tongue clean, tremulous; urine abundant. She has passed worms for about five years. Ordered three drachms of kousso.

21st. A great quantity of tænia has come away, and she has not experienced the giddiness at all until this morning.

25th. No giddiness; has passed more worms; still complains of pain in the right side.

June 15th. Has passed no more worms.

Case XVI.—E. W., aged 30, servant; April 23, 1853. Suffers from pain in the head, across the brows, tinnitus aurium, and giddiness. Does not vomit often, but feels occasional nausea, and has suffered from flatulence for six months. Menstruation regular; griping pain in the bowels, which are confined; never had fits; has passed flat worms for twelve months. Ordered a turpentine draught with castor-oil, and a mixture of sulphate and bi-carbonate of magnesia, with tincture of hyoscyamus and quassia infusion.

27th. The draught brought away "a very short worm;" bowels are open; she feels better.

30th. Feels improved and stronger; no more worms.

May 11th. Is much better.

Case XVII.—D. S., aged 42, a bailiff. Has had pain in the back and lower limbs for two weeks. Lost the use of his legs for about two days, with prickling pains in them; no numbness. He got wet about three weeks since. He says he had a similar attack about four years ago. He has worms which come away from him very often. The pains are worse at night. Ordered iodide of potassium, and rhubarb pill. It is to be regretted that this interesting case is incomplete.

Case XVIII.—C. L., aged 40; May 28, 1853. Has had five children; menstruation regular; is so nervous that she cannot go from home without some one accompanying her. Complains of pain in the back of the head, and of burning pain in the abdomen. Has occasionally passed "little thread worms."

June 4th. Evacuated some round worms last week; has pain in the stomach.

Case XIX.—S. A. F., aged 8; June 29, 1853. She is suffering from chorea on both sides of the body; has passed pieces of flat worm, and has lost flesh lately. There is a marked systolic bruit.

Case XX.—S. A., aged 29; November 11, 1853. Has been labouring for six months from intense dyspnœa, particularly in the morning and evening. Is constantly suffering from profuse catamenial discharges. Had a sensation of rising in the throat a few days ago, and a fit at the same time; bowels generally confined; she breathes apparently with extreme difficulty, and at every inspiration there is a wheezing noise in the throat, but no morbid phenomena are observable in the chest. States that she has spat much.

December 2. Breath better; still expectoration. Fourteen days since she first began to pass tape-worm; yesterday, more in large quantity; constant giddiness in the morning; states that it is two years since the fits first seized her. Ordered kousso and castor-oil.

9th. Two hours after taking the kousso, the bowels began to be moved, and she passed some joints of flat worm and small round worms; headach better.

16th. Has passed round worms and been sick. She had a fit on the 13th, ordered a turpentine and oil-draught.

23rd. Passed worms yesterday; nothing stated of the operation of the turpentine; but to-day ordered kousso three drachms; and sulphate of zinc, sulphate of magnesia, and calumba infusion.

30th. Severe pain in the head; giddiness; great dyspnœa; sleeps badly; bowels open; tongue morbidly red; kousso brought away many pieces of worms, which have also come away every day since.

January 6th. Passed some tape-worm yesterday.

February 10th. Has reapplied, labouring under oppression at the chest, and has had one fit during the last month. Bowels much relaxed; catamenia regular. Yesterday, passed some round worms. Ordered steel and quassia.

February 21. Passed a quantity of tænia yesterday, but not so many as after taking the kousso.

March 10th. Has not passed any worms lately; has pain and giddiness occasionally in the head.

17th. Has passed worms, and had fits since last visit.

24th. Has giddiness; has just had a fainting-fit. Passed

worms a few days ago. Ordered oil of male fern, and castor-oil.

31st. Began to pass worms on the afternoon of the 25th, on which day she took the oil, and on the three following days. Head is better.

Case XXI.—S. P., aged 16, of nervo-lymphatic temperament; November 22, 1853. She had been an in-patient early in October last for severe fits, which appear to have come on in early infancy, and to have observed very irregular periods of recurrence. Six months ago they became more frequent, having sometimes five in a day. She had experienced no benefit from the treatment adopted. Catamenia have not appeared.

On application, it is stated that she has one or two fits every day. She has no notice of their approach; has not the aura epileptica, or globus hystericus; does not struggle or foam at the mouth, but "goes black in the face." She does not bite her tongue; the eyelids are partially open, and nictitate; the fits generally last about three hours; has no headach. Ordered shower-baths, steel, and sulphate of magnesia, with an aloetic pill. On the 18th of November she was made an out-patient, appearing to be in good health, and had experienced no fit for sixteen days, and very few during the whole time of her stay in the hospital. A few days afterwards she came as an out-patient, labouring under pains in the stomach, tenderness of epigastrium, and vomiting. The fits, too, though in diminished frequency, returned.

January 6th. Feels very giddy; has pains in the head; has not yet menstruated; had a fit a few days ago; yesterday, passed several joints of tænia.

10th. Has passed a quantity of joints of tape-worm, with some lumbrici; head better.

Case XXII.—E. E., aged 25; November 29, 1853. Had one child, ten months old; suffers from dysuria, fainting-fits, giddiness, swimming sensations in the head, sight occasionally leaves her; spine tender; has had a moxa applied to the lumbar region; has passed worms. Ordered steel, ammonia, tincture of hop and quassia infusion; also a turpentine draught.

No worms followed the administration of the draught, and although a variety of anthelmintics were afterwards given, the result was the same. It is doubtful how far the symptoms in this case depended upon worms.

Case XXIII.—J. C., aged 37; November 29, 1853. Complains of soreness of forehead, occipital headach, somnolence,

occasional giddiness; never vomits her food; flat worms have been noticed in her stools; tonsils are excavated. Ordered kousso, and a colocynth pill night and morning.

December 2nd. Ten hours after taking the powder, a large quantity of tape-worm was passed. She brought me a half-pint bottle, one-third full of the parasite, and she declared that it was only one-fourth of the whole quantity passed.

6th. Has the pain in the head less frequently; tremors better; vision not improved.

13th. Sleeps badly; frontal cephalalgia; continues to pass pieces of flat worm; kousso re-ordered.

Case XXIV.—D. H., aged 12, a boy, applied December 9, 1853, complaining of giddiness and frontal headach, passed joints of tape-worm two years since, but none noticed since.

Case XXV.—E. C., aged 17; January 31, 1854. Suffers severe headach and sickness; bowels costive; pupils dilated; talks to herself, and has various delusions and terrors; passed some lumbrici last week. Catamenia suspended for three months.

Case XXVI.—M. C., aged 43, February 10, 1854. Has had for the last two months a daily uterine discharge of blood; is troubled with leucorrhœa; feels sinking sensations at night and aching in the bowels; flatus; thirst; tongue large and pale; suffers from giddiness and loss of vision; never vomits her food. Ordered kousso, three drachms; also potash solution, compound tincture of rhubarb, and calumba infusion.

14th. Complains of pain at bottom of bowels; passed a large (*quære* long) tænia four hours after taking the kousso. Pain in head much better; giddiness is gone since the worm passed; sight is normal.

21st. Is better, but feels low and sinking; tongue cleaner. Mixture and kousso repeated.

Case XXVII.—E. H., aged 14; November 7, 1854. Is suffering from worms, but the result of the treatment adopted is, unfortunately, not mentioned.

This girl was first presented to me on the 9th of October, 1852, labouring under fits, from which she had never been free more than two or three months at a time since the period of the first dentition. The fits are generally in the day-time; intellectual faculties not much impaired; considerable enlargement of thyroid gland. It was stated that she never had worms, but I was not quite satisfied with this statement, and repeated the question many times during the months she was in attendance. Scammony powders and small doses of

turpentine were prescribed, and subsequently zinc and iron in combination. Great relief was obtained, and the fits became less frequent during the eight months I was watching her. Twenty-one months afterwards she again applied, it may be presumed, for the return of the fits, for on the 17th and 31st of March, 1854, it is stated she has had no fits since. On the 7th of November following, she again returned, and the first statement then made was, that, "she has worms," as so often suspected during the previous progress of the case. I may remark that the fits came on generally during the day. It is distinctly stated that, though the lips became blue, and she foamed at the mouth, she did not bite her tongue. Nothing is stated of somnolence, loss of memory, or laryngeal symptoms. In 1852 I diagnosed the case as chronic epilepsy, and in 1854 as hysteria, but I believe neither of those diagnostic attempts to have been correct. Her age, the infrequency of the fits, and the absence of any other phenomena of hysterical nature, are opposed to the idea of hysteria. On the other hand, unless a wide definition of epilepsy is admitted, I doubt the propriety of classing it as an example of that disorder. Perhaps "eccentric eclampsia" is the better word to employ provisionally for such a case, although I shall give reasons in the second part of this paper for entertaining some hesitation in so naming it. Great confusion must ever take place in the discussion of such a subject as this, until physicians are agreed upon the necessity of withdrawing epilepsy from the nosological *cadre* altogether, and of treating it merely as a convenient term to embrace a collection of symptoms referred to the motorial and sensorial functions, including, of course, a lesion of consciousness. Still better would it be to discard it *in toto*, and to describe separately the actual symptoms of the case, without any reference to a general term. There is some evidence of the beginning of such a way of thinking among later and enlightened writers, though others still adhere to the ancient paths, and even venture upon hypotheses to apply to all cases of epilepsy. I have for a long time past treated "fits," when mentioned as such by patients or friends, not as the end, but as the beginning of investigation; not as a certain disorder, but as indicating most obscure and uncertain symptoms, connected with almost infinite variations in the economy.

Case XXVIII.—F. W., aged 50, a cook; March 24, 1854. Pain in right side after eating; general phenomena of indigestion; bowels confined; pain across the eyes; catamenia have ceased; flatulence; has tape-worm. Ordered oil of male fern,

which brought away in two hours about two yards of the worm, with relief to the pain across the eyes, but general symptoms, such as anorexia, remained.

Case XXIX.—R. R., aged 5; May 2. Applied for relief from symptoms such as are generally considered to arise from worms in children, but without cerebral symptoms, unless starting in sleep be so considered. Six months ago she passed tape-worms. Her mother is much troubled with symptoms referred to the brain, and with the parasite.

Case XXX.—M. R., aged 9; June 27, 1854. Two years ago she was seized with sudden fits of insensibility, lasting a few moments. She passed a tape-worm, and was without the fits for some time, but they subsequently returned.

Case XXXI.—M. Y., aged 60, housewife, July 31, 1857. Complains of vertigo; headach; noise and singing in ears; has tape-worm. Ordered male fern.

Case XXXII.—J. W., aged 39, a painter, April 20, 1858. Is suffering from vertigo; frontal headach; has noises all over the head, like the whizzing of a steam-boiler; at the end of January, he had a fit; sight clear; pupils normal; has discharge from one ear, and has had shiverings. After a turpentine draught he voided large quantities of tape-worm.

Case XXXIII.—J. L., aged 24, a brass-caster; April 30, 1858. Appears to have been ill but a few days, with giddiness, buzzing in the ears, frequent tremors, hesitating speech. Head feels as if it were going to part when he coughs; pupils natural; pulse regular, about 80; tongue large, flabby, but clean; has passed both ascarides and tænia.

Case XXXIV.—J. J., aged 22, a bricklayer, May 4, 1857. Has frontal cephalalgia and mistiness about the eyes; when he stoops, he sees myriads of floating objects; feels confused; memory impaired; no noises in his ears; pupils and conjunctivæ natural; tongue white in centre, red at margins; pain between the shoulders; has passed the flat-worm, some a fortnight before admission; since childhood he declares that he has passed small white fragments; has eaten much raw beef.

Case XXXV.—T. M., aged 21, a cooper; June 1, 1858. Applies for relief with symptoms of bronchitis; suffers from vertigo, fatigue, and drowsiness; sight good; has colicky pain in bowels; itching of nose and anus; pupils natural; has voided about a yard of tape-worm; has eaten a great quantity of raw sausage.

Case XXXVI.—A. W., aged 17, a girl; June 1, 1858. Feels very giddy; eyes misty; noises in the ears; has been rather deaf for the last fortnight; pupils slightly dilated; tongue

rather coated, moist; suffers from colicky pain in belly, and itching of the nose; catamenia regular; says she had fever seven months ago, and headach ever since; eight months ago she passed flat and jointed worms, and says that all her brothers and sisters have voided flat worms.

Case XXXVII.—J. D., aged 30, a file-cutter, June 18, 1858. Has the general symptoms and indications of phthisis in first stage; occipital cephalalgia; vertigo and "fizzing sensations" in head; ringing in the ears and dimness of vision; itching of the nose and anus; pupils somewhat contracted and sluggish; tongue moist, slightly coated; has voided flat, jointed worms.

Case XXXVIII.—M. L., aged 21, single; June 18, 1858. Suffers from fits, in which she bites her tongue; headach precedes the fits; pupils dilated; catamenia irregular and pale; has passed both ascarides and lumbrici.

Case XXXIX.—A. C., aged 17, single; June 18, 1858. Suffers from frontal headach; giddiness and tremblings to such a degree as to be obliged often to sit down; pupils somewhat dilated; has voided flat worms; a draught containing the male fern was ordered, which brought away about a two-ounce phial full of tænia, with relief to the tremblings, but headach persisted on the 25th of June, when last reported.

Case XL.—W. C., aged 5 years, a boy. Is said to have been ill but a few days. Has had several fits; complains of pain over the right eye, of ringing noises in the ears, and of pains in the stomach; pupils rather contracted; often fingers his nose and anus; appetite ravenous; tongue slightly coated. Has passed flat worms.

Case XLI.—S. V., aged 50, November 9, 1858. Suffers from hemicrania, recent dimness of sight, giddiness, and is troubled with flat worms.

Case XLII.—S. B., aged 18, a girl; November 16, 1858. Complains of giddiness, frontal pain, pain and noises in the right ear; marked anemia. Passed tape-worms when young, and during the last four months.

December 10th. Has passed tænia, having been ordered a male fern draught; giddiness and pains less.

Case XLIII.—M. G., aged 14, a boy of full habit, admitted March 22, 1852. Labouring under acute general eczema; has been subject to ascarides and tape-worm for a long time, and occasionally passes them in great quantity; bowels usually confined; tongue clean; appetite good; is free from pain, with the exception of a little headach.

Case XLIV.—M. A. B., aged 14, a girl, well constituted;

admitted April 20, 1854. Has suffered from epileptic seizures for twelve months, almost constant headach, and drowsiness; passed flat worms before the fits commenced, and for many months afterwards. No worms were evacuated during her stay in hospital, and she left but little relieved. No hereditary tendency to fits. The catamenia had not appeared.

Case XLV.—J. B., aged 13, a boy, of sanguine temperament, admitted March 17, 1857. Has always enjoyed good health until five weeks since, when he was seized with an epileptic fit of a mild character. His countenance is not indicative of an epileptic conformation. He has constant frontal cephalalgia, with vertigo. Has never had a blow on the head, or been frightened. Has had worms, both tænia and ascarides, in his stools, months back. Is conscious of the approach of the fit, which commences with dimness of vision, and he then becomes nearly blind; a sort of tremulous movement then pervades the whole frame; his eyes remain closed, but there is no foaming at the mouth or biting of the tongue; is stupid after the fits, of which he has two nearly every day. The abdomen tympanitic, but no pain or tenderness on pressure; tongue clean; papillæ slightly elongated; urine abundant, containing a yellow sediment, but no albumen; specific gravity 10·15 acid. The report of the case states that ascarides were several times observed in the stools. He left the hospital on the 17th of April, greatly relieved, no regular fit having come on since the 31st of March.

Case XLVI.—J. E., a miner, aged 30, admitted May 8, 1855. Labouring under fits, which he states that he has had since he was fourteen years of age. The fits come on without warning, generally in the night, about once in three months, but sometimes oftener. They are attended with bleeding of the nose and ears, contractions of the extremities, and distortion of features. In the intervals he suffers from pain in the head, drowsiness, and "feels stupid." Heart and respiratory organs normal; bowels rather confined; tongue slightly coated; has never had an injury to spine or head, but states that he has been much troubled both with round and flat worms; ordered kousso and castor oil.

9th. His bowels were open three times yesterday; passed a long tape-worm and a great number of ascarides; pain in the head better; ordered turpentine and castor oil.

14th. Giddiness and pain in head better.

28th. Has great pain occasionally at the epigastrium, but giddiness and dimness of sight better.

31st. Has passed several portions of tape-worms in his

stools, and the head symptoms are relieved. Discharged June 8th, no fit having come on while he resided in the hospital.

Case XLVII.—S. M., a female domestic servant, aged 20, admitted March, 1857. Has been suffering for several weeks from gastric irritation, indicated by pain at epigastrium, nausea, occasional vomiting, and a low, nervous condition. Tongue coated, pale, papillæ abnormally prominent through the fur; bowels costive; urine scanty; appetite much impaired; moderate thirst; bitter taste in the mouth; has a sensation of beating in the head, with frequent vertigo and confusion of ideas; is frequently troubled with tinnitus aurium to such a degree as to produce temporary deafness, pains, and noises in the head, which appear to be aggravated by the recumbent posture. The catamenia have only appeared twice during the last twelve months, and then only scantily. She appears to have been out of health for two years, but was attacked about twelve weeks ago with severe symptoms connected with the nervous system, and, as described by her previous medical attendant, of a cataleptic character. These paroxysms were preceded by violent pains in the head, dimness of vision, and a feeling of overwhelming oppression; there were suffocating sensations about the throat, attended with evolution of flatus. The fits lasted sometimes two or three hours at a time, or even for a whole day, in which she was completely unconscious. During her residence in hospital she had several fits, of one of which the following is a description:—After being pretty cheerful, she became very quiet, and complained of headach and dimness of vision, and ringing in the ears; she then raised her right hand, and, with the forefinger extended, works it to and fro in the air in a vertical plane; the eyes everted, open, and fixed; the countenance, meanwhile, is not in the least changed, but she is insensible to external impressions, and so continues for a variable period of time. She has frequently passed tape-worms in her motions.

Among other remedies, she was ordered the oil of male fern twice. The first draught produced no effect, but after the second a considerable quantity of the flat worm was evacuated. The symptoms alternated greatly from day to day, and she still suffered from the recurrence of fits, headach, giddiness, and nausea; a slight icteric tinge became evident, connected apparently with most obstinate constipation, for which she was ordered croton oil and senna.

May 3rd. Feels rather better; has had little or no sleep; pulse frequent, but evidently accelerated by extreme nervousness; tongue still furred, and rather dry; slight thirst; little

appetite. The croton oil and senna have brought away two dark, slimy, partly fluid and partly scybalous motions, in which were fragments of tænia.

5th. Feels languid; is very restless; has considerable pain in back, head, and abdomen; bowels opened once; fragments of tænia observed; catamenia flowing freely; stomach very irritable, nausea being produced by the blandest diluents.

7th. A fit, characterized by the phenomena before described, came on to-day, attended with heaviness, languor, and throbbing pain in the head.

After a considerable time this patient left the hospital, much improved in general health, and relieved greatly as regards the peculiar hysterical paroxysms. It should have been observed that turpentine and kameela produced no effect upon the worms.

Case XLVIII.—T. J., a young gentleman, aged 20, extremely pale and thin, called on me May 18, 1858. He has never enjoyed good health, and during the past winter had a most severe attack of typhoid fever, followed by albuminuria, from which his convalescence was very tedious. About a fortnight ago he first came to know that he had tape-worms. He immediately applied to his brother-in-law, a surgeon, who administered to him a dose of turpentine, with the effect of bringing away an immense quantity of the parasite. He states that during the last two or three years he has suffered severely from giddiness, dimness of vision, and occasional noises in the ears; eyes sometimes as if dazzled; has experienced tremors in the arms to a great degree, and sensations of numbness in the hands and face, and up the arms; has suffered from paroxysms of most severe occipital cephalalgia, which generally supervened upon the attacks of numbness, and were followed by sickness; tongue constantly numb on these occasions; has never had a fit; lately experienced itching at the nose, and formerly to a considerable extent about the anus; has not suffered from abdominal pains, excepting about a month ago, when he was once attacked during the night with pain in the right side of the abdomen; appetite always good.

Since the expulsion of the worms he has had neither cephalalgia, giddiness, tremors, nor numbness; his sight and hearing also have remained unaffected.

Case XLIX.—The father of the above had, for a long time suffered from intense cephalalgia, and other symptoms referred to the nervous system, for which he had sought much advice. He then was advised to take a vermifuge, which was attended with the expulsion of a vast mass of tape-worm, aggregated by mucus into a consistent ball: when placed in water,

it nearly filled a wash-hand basin. Complete relief was obtained.

Case L.—A grandson of the last, 11 years of age, had suffered from ascarides for several years, which produced great uneasiness about the anus. The constitution is leuco-phlegmatic, and his face extremely pale. Last Christmas, on being informed of his symptoms, and especially of his headach and heaviness of manner, I advised his father, a surgeon, to administer a dose of male fern; a large quantity of tape-worm was evacuated, and the result was a most satisfactory alleviation of the symptoms, a certain stupidity or heaviness of manner having yielded to the natural brightness of childhood.

Such is a fair record of my experience of symptomatic verminology during the past seven years. It conveys, I repeat, but a very inadequate view of the extent of my observation during the ten years and a half I have resided in this town, but will give a sufficiently complete impression to a careful reader of the range of morbid signs which ordinarily accompany the presence of parasites in the intestinal canal of the human subject. When I survey the ample literature referring to intestinal worms, and mark the scantiness of allusion to the aberrations of nervous functions, and contrast such statements with the results of my experience, I am at a loss to account for the discrepancy but on one of two grounds—either that the personal clinical experience of the writers on this subject has not been sufficiently great, in a small space of time, to give a full glance of the matter; or that their minds have been insensibly warped by the averments of great authorities. It has been well observed by the admirable Gooch, in relation to the symptoms and treatment of one form of puerperal fever, that "when cases occur at long intervals, the effect of one fades in the mind before that of another is made, so that they do not mingle, and produce a distinct impression; but when they come in clusters at the same time, they rouse the thinking powers of the mind; one case casts a strong light upon the other, and the result is the formation of decided opinions"[a]. This statement is applicable to my own case, while investigating the symptoms of intestinal worms. Their constant recurrence among hospital and other patients served to fix my mind upon morbid indications which would, probably, otherwise have escaped my notice. The opposite condition of mind,

[a] An Account of some of the most important Diseases peculiar to Women. By Dr. Gooch. Page 71.

produced by rarity of the disease in a given locality or class of patients, may be appreciated by such circumstances as these. Three years ago, I asked one of the oldest and most experienced medical men in this town what were the indices on which he relied for the determination of the presence of tapeworm in the adult. He answered, with great simplicity, and, I am sure, with perfect truth, that he relied only on the actual statement of the patient that he was suffering from the parasite. One of the most distinguished physicians of this or any age told me, last autumn, that he relied mainly for the establishment of a diagnosis on the passage of the worm per anum into the clothes or the closet.

In reference to the latter source of error, that arising from the declaration of authors who have written with authority upon the matter, there is certainly abundant excuse for the imperfect knowledge of their readers, some of the most notable of recent observers having all but ignored, in set form, the facts which it is the object of this paper to illustrate. I would here again quote the same great physician from whom I have already borrowed:—"If the object of the student is to learn only what has been *said* on a subject, the pursuit of knowledge is an easy task; but if his object is to learn what is *true* on a subject, the pursuit of knowledge is the task of a life."

(*To be concluded in the next Number.*)

Art. XII.—*Pathological Researches.* By B. Wills Richardson, F. R. C. S. I., Member of the Court of Examiners of the Royal College of Surgeons in Ireland; one of the Secretaries to the Surgical Society of Ireland; Surgeon to the Adelaide Hospital.

1.—MUSCULAR TUMOURS.

Having had unusually large opportunities for examining uterine polypi and tumours, I am induced to place on record the results of repeated investigations relative to the intimate structure of these peculiar growths.

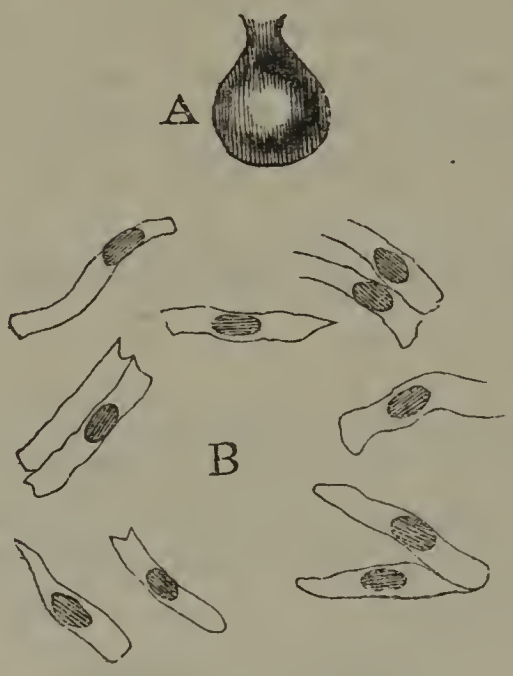
One of the most interesting questions in pathology is the origin of tumours resembling the natural structure of the organ with which they are connected, either by continuity of tissue, or, what is more extraordinary, by simple contiguity, the new formations being isolated by cysts, which clearly removes these tumours from the class of true hypertrophies.

Since attention was specially drawn to this subject by Drs. Oldham, Barnes, Bristowe, and others, various communications have, from time to time, appeared in the Journals, mostly confirmatory of the views of those who insisted upon their muscular nature.

Dr. M'Clintock having placed at my command the large opportunities which the Lying-in Hospital affords for investigating this subject, I scarcely omitted the examination of any one of the polypi removed there, or of the so-called fibrous tumours which are occasionally found embedded in the uterine parietes after death.

From these investigations I have been led to the conclusion that a large majority of polypi and tumours of the uterus are composed of fibro-muscular structures, i. e. of fibrous tissue intermingled with organic muscular fibres and fibre cells, some of which are represented at B, Fig. 1, and were taken from a small polypus of the size shown at A.

Fig. 1.



Some pathologists have met with tumours which they considered were solely composed of organic muscle, but in the specimens I have seen, fibrous tissue was likewise present.

The uterus is not the only organ with which muscular tumours have been found connected, as they have been found in the testis by Rokitansky; and both Virchow and Kölliker have discovered "elongated fusiform transversely striated cells" in an ovarian tumour. The prostatic region is also a favourite seat for these growths, which has assisted in originating the idea of the analogy between the prostate and uterus.

According to Mr. Harrison[a], Velpeau was the first to suggest this idea. He "rested the analogy upon the correspondence which he assumed to exist in the two sexes between the uterus and the prostate, from a belief that the two organs originated from the same centres of development in the early condition of the ovum, coupled with the fact that both are liable, in after life, to exhibit tumours presenting similar external characters."

The following reasons have been given by authors, and by Mr. Harrison[b], for considering the prostate and uterus morphological equivalents:—

1st. The prostate, although not of itself the absolute equivalent of the uterus, contains in it the utricle, situated in the very centre of the organ.

2nd. The prostate and uterus are constituted of the same tissue—organic muscular fibre.

3rd. The two organs are very frequently the seat of tumours, identical both in external and histological characters.

4th. A tumour having polypoid characters, and more intimately connected with the uterine structure than the muscular tumour, resembles one having the same characters growing from the posterior median portion of the prostate.

5th. Both organs are liable to hypertrophic enlargement.

6th. They are both liable to these changes after the prime of life has been passed.

Vogel attributes the formation of fibro-muscular tumours to the law of analogous formation, "for a cytoblastema secreted in excess is, through the influence of the surrounding tissue, converted into a similar substance, as in cases of hypertrophy."

According to this theory, independent tumours of simple muscular fibres (fibroid) should only be found in the situations of normal fibro-muscular structures.

The case observed by Virchow does not militate against it, as smooth muscular structures have been demonstrated in the testis. There is some difficulty, however, with regard to Kölliker's specimen, as *transversely striated* fusiform cells were found in it. Possibly they were derived from the round ligament of the uterus, which sometimes contains *striated* muscular structures, and which may have been involved in the tumour; but this is mere supposition, as there is no allusion to such a connexion in his description. Moreover, they were not fibres, for he tells that they had the appearance of transversely striated cells, each with a nucleus, similar to those seen in the tadpole.

According to Vogel's investigations, the development of ab-

[a] The Enlarged Prostate. [b] Ibid.

normal muscular growths and normal smooth muscles takes place in the same manner. In both cases nuclei are formed, and usually a fluid cytoblastema; the former are at first roundish, but subsequently become elongated and pointed, somewhat in the form of an oat-grain, and somewhat arched. Around these are formed elongated cells, which gradually join at the extremities, and at length become fibres. In some cases, however, matters do not proceed so regularly, and muscular fibre appears to be generated "without any preceding formation of cells."

In conclusion, then, I repeat, that a vast number of benign uterine tumours, if carefully prepared and examined, will be found to contain smooth muscular structures, so that the appellation "muscular" applied to such growths is strictly correct.

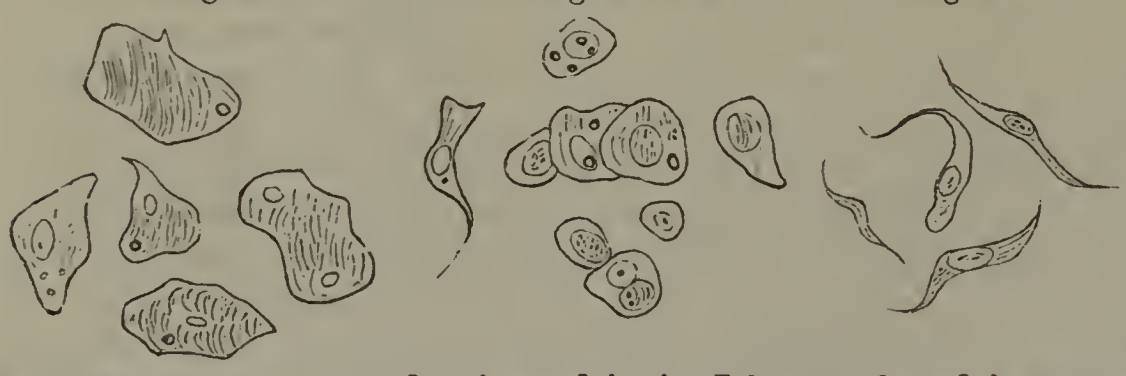
2. THE SO-CALLED CAULIFLOWER EXCRESCENCE OF THE OS UTERI.

This name has been rather loosely used by writers on uterine pathology, and has been applied to different varieties of malignant growths from the neck of the womb.

Until a comparatively recent period, cauliflower excrescences were placed among the epithelial cancers. It is now known, however, that they are frequently composed of structures similar to those seen in medullary cancers. But it should be recollected that the records of surgery likewise furnish instances of non-malignant epithelial uterine growths, such, for instance, as the warty excrescences of the os uteri.

Of three cases that lately came under my observation, two were constituted of structures having the same characters as those of medullary fungus; the other presented some difficulty in regard to the form of cancer to which it belonged; but as epi-

Fig. 2. Fig. 3. Fig. 4.



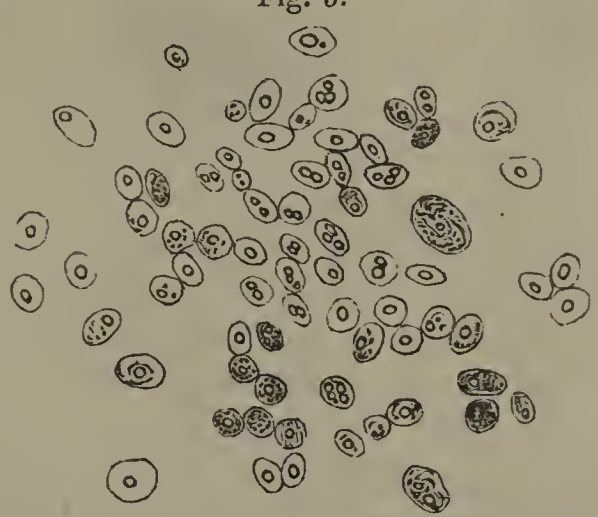
thelial structures predominated in it, I have placed it among the epithelial cancers. This was one of those specimens which show the difficulty of deciding as to the nature of a cancer, from the characters of a single so-called cancer cell; and, were it not that the vast majority of the cells assumed the epithelial cha-

racters, at the same time that they were *infiltrated* through the fungus, I would have had some difficulty in naming it. Thus at Fig. 2 are represented some of the epithelial-looking cells, which predominated in the fungus, but at Figs. 3 and 4 we have an illustration of some of the other cells of the same fungus, which formed the lesser amount of cells in the growth. These were smaller than the first, had a larger nucleus, and one at the lower part of the figure had two of these nuclei. Again, I also found in this excrescence elongated cells with nuclei, which are often seen in both medullary and scirrhous cancers (Fig. 4). That very excellent observer, Mr. Paget, believes that cases may be found "in which the cancer cells, or part of them, have characters intermediate, or transitional, between those of the epithelial and of the scirrhus or medullary diseases."

According to Lebert and Hannover, two kinds of cancer may be mingled in one mass. Such may have been the case in this instance; or the small cells represented at Fig. 3 may have been young epithelial cells undergoing development into the full-sized cell, as some pathologists have thought that such young cells have larger nuclei than the mature cell. This, however, notwithstanding all that has been written on the subject, must be a most difficult question to decide; as I cannot believe that any one could assert positively that some of the cells of Fig. 3 would have ultimately assumed the characters represented in Fig. 2.

I have said before, I formed my opinion as to the composition of this excrescence from the predominance of infiltrated epithelial structures through the mass.

Fig. 5.



With regard to the two medullary fungi, there was no difficulty. In these, vast numbers of small round and oval nuclei were seen (Fig. 5).

Some of these nuclei, loaded with oil globules, have apparently undergone a process of fatty degeneration. These small, oval, and round nuclei are frequently seen in medullary disease: for instance, there has lately come under my observation a malignant fungus of the orbit, and another of the breast, in which similar nuclei predominated.

The disease in the three women who were the subjects of these cauliflower excrescences ran the usual course; in all, hemorrhage was a prominent symptom, causing great exhaustion, and death ultimately took place.

3. CALCAREOUS AND FATTY DEGENERATION OF THE PLACENTA.

Dr. Barnes, of London, was one of the earliest writers to draw attention to that state of the placenta known as fatty degeneration. Fig. 6 represents some of the vessels of a placenta which afforded very excellent specimens of both fatty and calcareous degeneration. C, D, and E (Fig. 6) represent the size and appearance of the calcareous deposits, which effervesced, and totally disappeared on the addition of hydrochloric acid, leaving the small refractive oil globules intact. In some of these cases, apoplectic clots are met with, and to these may be attributed, in not a few instances, the death of the fœtus in utero (Fig. 6).

Fig. 6.

When this degeneration has proceeded so far as to interfere seriously with the functions of the placenta, the nutrition of the fœtus must suffer; and if these extravasations occur at a comparatively early period of gestation, the death of the infant will most probably take place.

Nevertheless, the disorganization may proceed to a certain extent, without necessarily entailing the destruction of the fœtus.

It is interesting to observe the analogy between this fatty degeneration of the placenta and that of the minute cerebral vessels, a state to which the vast majority of cases of apoplectic effusions, after fifty years of age, may be referred, and the discovery of which has checked the wholesale venesections by which this accident used to be treated.

Art. XIII.—*Contributions to a New Scheme of Prison Dietary.* By Edward Smith, M. D., LL.B., L.R.C.P., Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, &c.

The subject of this contribution is one which constitutes a part of a larger inquiry into the influence of various agents over the respiration. It is also one which has greatly interested me, and, in the belief that it has not obtained that attention from men of science to which it is entitled, I have been induced to pursue it as far as was consistent with my professional engagements. It will, I believe, well accord with the spirit of philanthropy which is so evident in our profession, if my professional brethren who are visiting justices or surgeons of gaols, should give a little attention to the subject, with a view to the practical application of some of the results which have been obtained; and it will be gratifying to find that increased interest is manifested in a subject which we all admit to be important, and of which they are the most competent judges.

It is now some years since the Government confided to a number of gentlemen the task of devising a dietary which might be adopted in all the county prisons, but which was not intended to be introduced into military prisons and convict establishments: and, in a letter of instructions, Sir James Graham laid down the important principle, that the dietary should not be made an instrument of punishment. Hence it became the duty of the Commissioners to provide a dietary which should be equal to the wants of the system under all the ordinary conditions of prison discipline, a task of no little difficulty, both from the imperfection of knowledge as to the action and nutritive value of foods, and the almost incredible diversity of management in the county gaols. The scheme was presented, and embraced nine classes of prisoners, and five classes of dietary; and to it were appended two noticeable statements, viz.:

that they regarded the scheme as indicating the minimum quantity of food which should be supplied; and that Mr. Hill had dissented, on the ground that science could not show, with sufficient certainty, the precise influence of various kinds of foods, and his fears lest the amount of food thus recommended should be inadequate to the wants of the prisoners.

I have elsewhere analyzed this scheme[a], and have endeavoured to prove that the principles upon which it is founded are erroneous. These are, first, variations in the quantity of nutriment supplied according to, and increasing with, the term of imprisonment: so that, for a term of seven days, only one pound of bread and four ounces of oatmeal are allowed daily; whilst for four months and upwards there is an allowance of twenty-two ounces of bread, and one pound of potatoes daily, four ounces of oatmeal four times, and two ounces thrice a week; one pint of cocoa with molasses thrice per week, with four ounces of cooked meat without bone four times, and three ounces three times per week,—quantities which evidently indicate deficiency on the one hand and excess on the other. Second, variations from day to day, so that the nutritive value of the food differs greatly. Third, insufficient increase with hard labour, so that the vastly increased and excessive exertion of the tread-wheel labour during three weeks is supposed to be compensated by giving *a pint of soup weekly!* and hard labour of every degree, enduring from six weeks to four months, is supposed to be equal to the effect of imprisonment without labour for four months, and over four months, respectively. It is difficult to suppose that the penal quality of dietary was not introduced into this scheme, but it is clear that it is based upon the general, but erroneous, belief that there is some quality in confinement which calls for an increasing supply of food,—erroneous, because prolonged inaction is properly met by lessened food and increased exercise, and because the necessity for increase of food is clearly owing to the insufficiency of food at the beginning, and particularly in those condemned to hard labour.

There was no power to render the adoption of this scheme compulsory, and, when we consider its palpable defects, and the want of precise knowledge, both in relation to the effect of labour and the action of food, we cannot be surprised that county magistrates have thought for themselves, and that at the present moment only one-half of the county gaols have adopted the scheme. A return, entitled "Dietary for Con-

[a] Transactions of the Society for the Promotion of Social Science, 1858.

victs," was issued by the Government in 1857, which is well worthy attentive and, as it must be, laborious perusal. I do not mean to refer to it further than to show that there is a diversity of dietary in institutions which are identical in their purposes which is astounding, and cannot but be regarded as a disgrace to the scientific knowledge of the present day. This may be shown by a simple contrast of the dietaries of two sets of prisons. Thus, at the Cardiff Gaol, the dinner consists of half a pound of bread, only, to prisoners condemned for three and fourteen days (one pound of potatoes is added to those condemned for seven days); and for all other durations the amount is simply half a pound of bread and one pound of potatoes. On the other hand, at Brecon, another Welsh gaol, all prisoners condemned from fourteen days to two months have six ounces of meat, half a pound of bread, and half a pound of potatoes, four times a week, and potatoes and bread alone thrice a week, whilst for all exceeding two months the quantity of potatoes is increased to one pound. The dietary in the Middlesex prisons is still better than that of Brecon, since meat is given several times a week at Coldbath Fields to all condemned above fourteen days, and daily to all condemned above two months. Thus the same beings, for the same crimes, and with the same sentences, have this great diversity of treatment. The "Return" shows that this diversity of dietary extends not only to quantity and variety of food, but even to the number of meals, so that at St. Albans only two meals are allowed per day.

As dietary is essentially associated with labour, it is necessary that I should state that there is no uniform plan of labour in county gaols, but, on the contrary, that the diversity is almost past belief. The various kinds of labour in prisons may be thus stated: cleaning, repairing, manufacturing, oakum, wool, or hair picking, stone-breaking, grinding, carrying a cannon-shot (the shot drill), turning a crank, and the tread-wheel. With a view to ascertain how far any general plan of punishment existed, I addressed, in 1858, queries to the governors of nearly every county gaol in England, and was favoured with upwards of sixty replies, and from these the following resumé has been prepared:—

"Some of our county prisons find no labour at all; others only that of ordinary trades; others have crank labour alone; others tread-wheel labour alone; whilst in many, one of the two or both of the two latter forms of hard labour are conjoined with some kind of trade. In many the tread-wheel and crank are

unprofitably employed, whilst in others they are used as mills or pumps. In some, women even work the crank and the tread-wheel. In some the crank and tread-wheel are exceptional employments; in others they are universally used, but for a small part only of the sentence; whilst in a third class they are constant employments during the whole term of imprisonment. In most gaols they are chiefly employed for short sentences, and therefore for small crimes, and with insufficient food; whilst the light occupations are reserved for long sentences, with greater crimes or frequent repetition of criminal acts, and excessive food! In some they are worked for an hour without intermission; in others, thirty, twenty, fifteen, ten, and down to four minutes only at a time. In some they are enforced for three hours daily, and simply as exercise, whilst in others the labour endures ten hours. In many, boys of fourteen years of age work the wheel and the crank, whilst in others grown men make shoes or pick oakum only. In some the ordinary rate of the ascent on the tread-wheel is fifty-six steps, of eight inches each, per minute, whilst in others it is so low as thirty. In some the ordinary pressure on the crank is seven pounds, at others twelve pounds; the pressure being certain and demonstrated by weights in one, and uncertain, depending upon the turning of a screw, in another. In some the ordinary number of revolutions of the crank per day is 14,400, whilst in others, in which the crank is still the chief instrument of punishment, it varies from 13,500 to 6000 or 7000, at the discretion of the surgeon, the prisoner being still without actual disease. In some the day's work may be performed in any part of the twenty-four hours, with the index showing the number of revolutions performed, within sight of the prisoner, whilst in others it must be performed before the night, and with the index outside the cell, and so that the prisoner is unable to ascertain from time to time how much labour he has yet to perform. In some, pumping is performed for one hour only, and even during that short period, as at Reading, there is no method of determining if any individual prisoner is labouring or not, while in others the labour is for the whole day pumping water into the sewers. Oakum-picking is regarded as no labour in one prison, and as hard labour in another; and in the latter it is two pounds for a day's work, at Wandsworth and Westminster, and three pounds at the Coldbath Fields, whilst it is five pounds at a workhouse. In some the prisoner, by good conduct, obtains light labour, a commendatory badge, and a pecuniary reward; in others it is the tread-wheel from the first to the last; whilst

in many, as at Wandsworth, the change of labour is due neither to crime, sentence, nor conduct, but to the number of the prisoners."

Nothing further than this can be necessary to show how nearly hopeless it is to propose a scheme of dietary which, by any arrangement, might be fitted for all these prisons, and also how blindfolded is Justice, not only in figure but in reality, as she administers the laws in this enlightened country. It certainly is one thing to be a prisoner at Cardiff or Reading, and quite another thing to undergo the same sentence in Middlesex or at Leicester.

I now proceed to state the result of my inquiries as to the influence of these various kinds of exertion, and, adopting the dictum of Sir James Graham, viz., that the dietary should not be an instrument of punishment, I shall first indicate the circumstances which demand a variation in the quantity of food supplied, and then state the quantity of food which will meet the wants of the system under different conditions.

1st. The circumstances which call for variation in the quantity of food supplied, are, sex, age, size, season, employment, and conformation of body.

Upon many of these conditions we have recently obtained most valuable information from the pen of Mr. Milner, the surgeon to the convict side of the Wakefield Gaol, in a paper which was read at the last Meeting of the British Association at Leeds, and since published in the Sanitary Review. It has been obtained in reference to the gain or loss of weight of the prisoners conjoined, with careful attention to the state of the muscles and the blood, as indicative of health; and extends over an experience of eleven years, and includes 40,000 weighings. It is inapplicable to my present purpose only in one particular, viz., that the dietary of all the convicts is fully equal to that of the highest class only in the scheme for convict prisons, since it consists of ten ounces of bread, four ounces of cooked meat without bone, half a pint of soup, one pound of potatoes, two ounces of oatmeal, and three-fourths of a pint of milk daily. In applying it, therefore, to the lower classes of dietary in county prisons, I shall lessen the force of the argument, for it is certain that whatever ill effects have resulted from this liberal dietary they would have been greater with a much inferior supply of food, although for shorter periods. It is, however, the only information of the kind, and may be in all respects fully relied upon. No prisoner is placed upon extra diet unless he show evident signs of injury, and

yet, with so large a dietary, Mr. Milner has shown that it is insufficient.

In reference to age, Mr. Milner has shown that, up to thirty years, the addition to the weight which should accompany growth is not equal to the standard in health and freedom, and hence, although there may be an actual increase in weight, there is, in fact, a deficiency, and this is to the average extent of one pound and three-quarters for each person under seventeen years of age. The general results prove that the above-mentioned dietary is insufficient for the period of growth, but somewhat excessive for the old; and that at seventeen years of age the amount of food required to maintain a due amount of growth is quite equal to that for the fully developed adult, whilst after fifty years of age the quantity may be lessened.

Mr. Milner also proved, that for all persons of unusual height the food allowed was insufficient; and that persons of a girth of fifty-four inches or upwards lost weight on that dietary, in a rapidly increasing ratio.

Duration of imprisonment had but little average influence when it extended over a lengthened period, but it was influential in shorter durations. Thus, during the first two months the prisoners gained weight, because the anxieties attending their trial had terminated, and many were then put upon a dietary better than that usually enjoyed by them; after this period they began to lose weight until additional food was supplied (the extra diet being usually bread and milk), and the balance was thenceforward maintained. On the whole average the effect of duration of imprisonment was scarcely perceptible.

The amount of labour exacted was very influential. At Wakefield the sole employment is manufacturing mats and matting, and in some departments the labour is very great. The dietary was so insufficient that the extra diets amounted to from one-third to two-thirds of the whole number of prisoners, and, notwithstanding this, the loss of weight in the weavers of wide widths of matting was so great as an average of seven pounds per man.

Such are the results obtained when a uniform and liberal dietary is adopted, and where there are none of the usual prison punishments. I have endeavoured to carry out inquiries in a different direction, but tending to the same end, in reference to the effect of the usual prison punishments, as evinced by the amount of carbon excreted by the lungs. I find that the effect of the tread-wheel at the Coldbath Fields Prison is upwards of five times that of inaction during the period of

labour, and one half more than inaction in the intervals of rest, so that the actual result of the tread-wheel labour during seven and a half hours, with its alternate work and rest, is more than three times greater than that of inaction. There is, however, the same want of uniformity in the tread-wheels of different prisons, as has been already exposed in reference to dietary, and they vary as 3 to 4. The crank, when heavily loaded, has an influence much greater than that of the tread-wheel, since the number of revolutions demanded occupies about eight hours, and does not permit of frequent intervals of rest. This instrument, like the tread-wheel, differs greatly in its penal power in different prisons, but in some experiments which I made at Wandsworth Gaol, the effect of a given number of revolutions by the same machine was precisely the same, whether they were made slowly and occupied a long period, or were performed more quickly in a shorter time. Hence the total effect of the day's labour on the same crank varies chiefly with the number of revolutions performed; but if cranks with different pressures be used, the increased effect of the heavier pressure was exceedingly marked. The shot-drill varies in effect with the weight of the shot, the pace being equal; and with a twenty-four pound shot the effect is equal to that of the crank during the period of the drill.

Thus the ordinary tread-wheel worked at a moderate speed, say fifty-four steps of eight inches each per minute, a crank with a pressure of eight or ten pounds, and the shot-drill with the twenty-four pound shot, produce nearly equal effects, and each cause a total waste of more than five times the amount of that from inaction. The labour in weaving cocoa-matting is much less than that with the tread-wheel, crank, or drill; and since we have seen that, with a very liberal dietary, the waste in the weavers was much greater than the supply, it is easy to see how frightfully deficient must be the diet of bread and gruel in the scheme for county prisons, when associated with tread-wheel and crank labour; and how very like adding insult to injury it is to make the distinction in the dietary for tread-wheel labour and no labour to consist simply in one pint of soup per week.

The influence of season is of special interest and importance. Mr. Milner found, from 40,000 weighings, that the prisoners lost weight from September or October to April, and gained weight in the other months of the year. The change in each direction was abrupt, yet in that prison an attempt is made to keep a tolerably uniform degree of temperature, and the labour is not different from that of mechanics. I have

shown in papers read this year at the Royal Society, and at the Royal Medical and Chirurgical Society, that the human system varies in its amount of vital action at different seasons, so that it is the least active in summer and the most in winter, corresponding precisely with Mr. Milner's results. The waste of system at rest is at least one-sixth less in summer than in winter; and the effect of season so far extends to exertion that the effect of the latter in inducing waste varies with the effect of season on the body at rest. The amount of waste does not, however, measure the whole effect, for with it there is less appetite for food, and if the same amount of labour be exacted in summer as in winter, the exhaustion is greater in the former. This is seen by the state of the prisoners on the tread-wheel at the two seasons; and is very familiar to us in the state of cab and omnibus horses in summer and in winter. Hence, with lessened food, and increased difficulty in preventing excess of heat in the body, there should be less labour demanded.

The variation amongst men in reference to their conformation or constitution, and, therefore, to their tolerance of adverse influences, is very marked, so that in my experiments on the quantity of carbonic acid evolved, Professor Franklin, F.R.S., and myself differed as 17 to 26, both of us being nearly of the same age and height, but differing in robustness of system. This variation is of general application, but there are special causes affecting prisoners in relation to their punishments, such as the degree of muscular development in the different parts of the body which are variously engaged in prison punishments.

Thus, on a review of the foregoing clauses, we arrive at the conclusion that there are numerous circumstances which affect the amount of food which should be supplied to prisoners, and that it must be unjust to provide only for the minimum of want. If but one dietary is provided, it ought to meet at least the average waste, but as that would involve an excess of food in some, and a defect in others, in order to produce the average, reason and humanity demand that the supply of food should vary with the waste exacted. Moreover, if it be admitted that the food should meet the wants of the system, it is economical to provide for this from the beginning, since otherwise extra diet must be supplied, and, being once given, cannot be subsequently withdrawn without great risk.

The following general regulations appear to me to demand consideration:—

1st. The supply of food must meet the wants of the system.

2nd. Variations in the amount of nutriment supplied are

unnecessary in relation to the duration of imprisonment, and from day to day, provided the quantity at first supplied be suited to the wants of the system.

3rd. Growing persons must be supplied with excess of food to support the development of the system, whilst in old people the supply may be lessened. Persons of unusual size demand an increased supply of food.

4th. From December to April, both inclusive, the supply should be $\frac{1}{6}$th greater than during the other months.

5th. The supply of nutriment must vary with the labour exacted, and when violent exertion is demanded throughout the day, the food should be nearly equally distributed over the three meals.

6th. With violent exertion, the meals should not be too bulky, in order to avoid undue impediment to the respiration.

7th. Other things being equal, that food should be selected which will fulfil these indications at the least cost.

I now proceed to state the result of my inquiries as to the amount of food which should be supplied.

In forming a scheme of diet based upon these principles, and suited to the different prisons, in which, as I have shown, the discipline is so exceedingly varied, it appears to me that there should be a basis dietary which would be suited to the wants of the system in a state of quietude, and after having determined the wants of the system under various kinds of exertion, to apportion a dietary to each degree, which shall be a multiple of the basis quantity. This would provide a scheme which might be adopted equally well at the Reading Gaol, with its almost complete absence of labour; at the Wakefield and Durham Gaols, with their manufactures; at the Leicester Gaol, with its tread-wheel; at the Wandsworth Gaol, with its crank; as well as at many prisons in which there is a combination of these conditions. In no other manner can the evils complained of be satisfactorily removed.

Of the three classes of foods, or elements of food, viz., nitrogenous (flesh-forming), hydro-carbonaceous (heat-generating), and saline, my experiments have reference to the second only, and consequently, in my remarks upon nitrogenous food, I must follow in the footsteps of previous observers; moreover, I have determined the quantity of carbon expired only.

The amount of carbon which was exhaled by myself and three other gentlemen of different ages, in a state of rest was 7·144 oz. in twenty-four hours, and if to this be added $\frac{1}{10}$th of that quantity for loss of carbon by other outlets, as ascertained

by Barrall, the total quantity of carbon which is lost, and must be replaced, daily, is 8 oz. avoirdupois.

The amount of nitrogen which must be supplied may be estimated by reference to the proportion of nitrogen and carbon in milk and bread, the two substances upon which the life of man mainly depends at different ages, and each of which would suffice to maintain life for a considerable period. In cow's milk the nitrogen to the carbon is as 1 to 11, and in bread as 1 to 22, and as it is highly probable that the former proportion is unnecessarily high during adult life, and the latter too low, it would be proper in prison dietaries to take the mean of the two, and let the proportion be as 1 to 16·5; this would give a requirement for 8 oz. of carbon, and somewhat more than 200 grains of nitrogen daily, and this, I think, ought to be supplied to the prisoners, on the average, in a state of rest.

The precise form in which the substances may be given is a matter of detail, but we have a good standard of comparison in bread—a substance which is tolerably uniform in composition, and one, which must form a large part of any dietary. Fresh bread contains 30 per cent. of carbon, and $5\frac{3}{4}$ grains of nitrogen in each ounce avoirdupois. Hence, if bread alone were supplied, it would require $26\frac{1}{2}$ ounces to supply the carbon, but it would be deficient by 48 grains in the requisite quantity of nitrogen, and, therefore, an addition of some more highly nitrogenized food would be necessary. Cheese is the best known and most economical nitrogenous food, and 23 ounces of fresh bread with $2\frac{1}{2}$ ounces of cheese would supply the required amount of both carbon and nitrogen; and there can be no doubt that these, with the addition of water, would support the system for a lengthened period. This is a very different amount of food from that supplied in prisons, in the defective first-class, and excessive fifth-class dietaries.

It is now right to mention that the amount of carbon is not the whole amount of heat-generating food which is necessary to the system, since it has been tolerably well established on the lower animals, that there must be a combination of oxygen with hydrogen, and as well of oxygen with carbon, in the system, and hence that hydrogen in food, as well as oxygen, must be supplied. I cannot enter into this question, since my experiments on the total quantity of oxygen consumed are not completed; but, whilst recollecting the hydrogen which is contained in both starch and fat, in addition to the carbon now under discussion, and also the small proportion of oxygen which could not be accounted for by the carbonic acid in the

higher animals, it might be right to admit that some small addition to the above-mentioned quantities should be made; I cannot, however, further refer to it.

Having established the above as the basis dietary, or the quantity of food which must be supplied in a state of idleness, we may vary the articles of food, and yet retain the same nutritive values, by attention to the following table, which has been in part compiled from Professor Playfair's data:—

	Parts of various Substances equal (in Carbon) to 10 parts of fresh Bread.	Grains of Nitrogen per Ounce.	Cost per Pound, Oct. 1858, Coldbath Fields.	
			s.	*d.*
Bread, ...	. . . . .	$5\frac{3}{4}$	0	$1\frac{1}{2}$
Wheaten flour, . .	8	$7\frac{3}{4}$	0	$1\frac{1}{4}$
Peas, ...	8	$15\frac{3}{4}$	0	$1\frac{1}{2}$
Rice, ...	8	$4\frac{1}{3}$	0	$1\frac{1}{2}$
Oatmeal, ...	$7\frac{1}{2}$	$8\frac{3}{4}$	0	$1\frac{1}{2}$
Scotch barley, . .	. . . . .	. .	0	$1\frac{3}{8}$
Molasses, ...	. . . . .	. .	0	2
Meat, fresh, . . .	10	$8\frac{3}{4}$	0	$4\frac{1}{2}$
Cocoa, ...	5	$8\frac{3}{4}$	1	$1\frac{1}{2}$
Potatoes, ...	$0\frac{1}{3}$	$1\frac{1}{2}$	0	$0\frac{3}{4}$
Suet or butter, . .	$4\frac{1}{2}$			
Sugar, ...	$7\frac{1}{2}$	. .	0	$4\frac{1}{2}$
Indian corn, . . .	$7\frac{1}{2}$	$7\frac{3}{4}$		
Cheese, ...	8	$19\frac{1}{2}$	0	6

Thus, in reference to the carbon alone, 1 ounce of suet or pure butter is equal to $2\frac{1}{4}$ ounces of bread; 1 ounce of sugar, oatmeal, and Indian corn, to $1\frac{1}{3}$ ounces of bread; 1 ounce of wheat flour, rice, peas, and cheese, to $1\frac{1}{4}$ ounces of bread; 1 ounce of fresh meat, or 2 ounces of cocoa, are equal to 1 ounce of bread; whilst it requires, both in carbon and nitrogen, 3 ounces of potatoes to equal 1 ounce of bread. The amount of nitrogen contained in these various substances varies from $1\frac{1}{2}$ grains per ounce in potatoes to $4\frac{1}{3}$ grains in rice; and $7\frac{3}{4}$ grains in wheat flour to $19\frac{1}{2}$ grains in cheese. Oatmeal, wheat flour, Indian corn, fresh meat, cocoa, and peas are all richer in nitrogen than bread, and that of peas to bread is as $2\frac{1}{2}$ to 1. As most of the articles now mentioned are also richer in carbon, it is evident that, the price being equal, it would be better to substitute them in part or in whole.

In reference to the price, a consideration of great moment in the construction of dietaries, I have added to the table the cost of the articles at Coldbath Fields Prison; but it is needful to state that the authorities grind the corn by prison-labour,

and make the bread which is used in the prison, a plan to be highly recommended to the attention of the visiting justices of all county prisons. The actual cost of excellent bread is $1\frac{1}{12}d.$ per pound, whilst that of flour is $1\frac{1}{4}d.$; of peas, rice, and oatmeal, $1\frac{1}{2}d.$; and of potatoes $\frac{3}{4}d.$ per pound. Hence, of all the farinaceous foods, potatoes is the dearest, viz., $2\frac{1}{2}$ times dearer than bread; whilst peas is by far the cheapest.

Space will not permit me to draw out in detail a scheme of dietary based upon those data, neither is it necessary, since the table will enable any one to vary the articles at his own pleasure. I, however, suggest that oatmeal should enter largely into the dietary (as indeed it does in the Northumberland and Cumberland Gaols), and especially for breakfast, and that cheese should be a constant addition to the supper, whilst at dinner potatoes might be less largely used than at present, and suet, flour, peas, and oatmeal be made into pudding, In reference to fat, I think there can be no doubt, from the abundance of it supplied by nature, as well as our enjoyment of it, that it should enter into all dietaries to the extent of two ounces per day. It is much more difficult to determine how far meat is necessary, in a state of inaction, when enough of other nitrogenous food is supplied; but whilst common experience shows the opinion of the world as to the advantages resulting from its use, we know that agricultural labourers in all countries enjoy a fair state of health, and the longest life, with but a very minimum supply of it. My experiments have shown that all nitrogenous food is "excito-respiratory" in addition to its flesh-forming power, and in this respect it is evident that meat or other nitrogenous food is more necessary for the transformation of starch when the body is perfectly inactive than when a certain amount of exertion is made. Agricultural labourers, who so seldom obtain fresh meat, obtain bacon less rarely, and hence have a certain amount of animal tissue, besides the contained fat.

If two ounces of uncooked meat be added to the above-mentioned quantities of bread and cheese, or their equivalents, there would still be a deficiency in the required amount of nitrogen; and as tea, coffee, beer, and similar nitrogenous articles are properly excluded, it is not easy to supply this deficiency. Milk would, no doubt, be a valuable addition, but, beyond the consideration of cost, it is, doubtless, serviceable to limit its use as far as possible to extra diets, rather than to assimilate prison to home dietary.

I am also desirous of urging the use of unsifted flour, not-

withstanding the prejudice which has arisen against it of late years, since, whilst it is not deficient in carbon, it contains more nitrogen, and, moreover, it acts as an aperient, an action which, within limits, is of great importance to the unoccupied prisoners, and tends more than any other influence, except exercise, to maintain an efficient state of the bodily functions. For the like purpose, an admixture of rye flour is commendable, as in the Continental states. With plenty of good brown bread, made under efficient superintendence, we need fear but little for our prisoners in a state of inaction.

Having thus given the basis dietary suited to all prisons where no labour is enforced, and to prisoners whilst unoccupied in other prisons, I may give, in a few words, the factor which will render it applicable to other conditions.

With the tread-wheel so constructed that the body cannot be held erect, and with the twelve-pound crank used from six to eight hours per day, the quantity of carbon lost by me was fourteen ounces per day. This is represented by $47\frac{1}{2}$ ounces of bread, and the addition to the basis quantity is eight-tenths of that quantity. Hence at rest the quanties are 23 ounces of bread and $2\frac{1}{2}$ ounces of cheese; but with tread-wheel labour, $41\frac{1}{2}$ ounces of bread and $4\frac{1}{2}$ ounces of cheese daily. The latter class of prisoners should be supplied with a large breakfast, and if much meat is given it would be better employed if divided between the breakfast and dinner than with the latter alone.

An estimate of the waste from manufacturing mats, &c., may be made by considering the effect of such defined degrees of exertion as walking at given rates of speed. Walking at 2 miles per hour increases the quantity of carbon $\frac{4}{5}$ths, and at 3 miles per hour, $1\frac{3}{5}$ths. An unoccupied man who saunters about at 2 miles per hour, during 3 hours, walks 1 hour at 3 miles per hour, and stands 2 hours per day, demands an increase in carbon from 8 ounces at rest, to $9\frac{1}{2}$ ounces, or from $26\frac{1}{2}$ ounces to 32 ounces of bread. This dietary would be suited to prisoners engaged in trades and very light manufactures, and the proportionate increase of the basis dietary is $\frac{1}{5}$th.

For the workmen engaged in weaving wide widths of matting, as at Wakefield (where Mr. Milner has shown the insuffiency of their good dietary), and to those condemned to the eight-pound crank, with 7000 revolutions per day, or who occupy several hours per day at the shot-drill, the increase must be $\frac{6}{10}$ths of the basis quantity, and the quantity of bread be increased to $42\frac{3}{4}$ ounces.

These four classes would meet the wants of all our gaols, with their present absurd diversity of punishments, and the

daily quantities are as follows, varying with the amount of exertion :—

With rest, ...	23 oz.	of bread,	$2\frac{1}{2}$ oz.	of cheese.
Light trades, ...	$27\frac{1}{2}$	,,	3	,,
Laborious trades, and light crank, ...	$36\frac{3}{4}$	,,	4	,,
Full tread-wheel and heavy crank, ...	$41\frac{1}{2}$	,,	$4\frac{1}{2}$	,,

The equivalent values of other foods may be obtained from the table.

I propose to arrest my remarks at this point; but I would ask men of science and philanthropists to consider how far it is beneficial, either to the prisoners or the country, that so much animal force should be so uselessly expended, seeing that with increased labour there must be increased food and increased cost, or the health and strength of the prisoners must be allowed to diminish. It is also time that an opinion should be arrived at as to the relative advantages of the very different modes of carrying out hard-labour sentences, as at Reading, with its mental instruction; at Wakefield, with its manufactures; at Leicester, with its tread-wheel; and at the New Bailey, Salford, with its admixture of punishments. I also venture to suggest that the present diversity in the treatment of our criminals is highly reprehensible; and that there are no sufficient grounds for the great distinctions made between the dietaries of county and convict gaols, both at home and abroad.

Art. XIV.—*Notes on Diphtheria.* By Walter Bernard, Licentiate of the King and Queen's College of Physicians in Ireland, Dungannon.

Diphtheria being an epidemic disease, of which so little is as yet known, want of uniformity of character in the reported cases must be my apology for trespassing on the pages of the Dublin Quarterly Journal with a brief account of the two following cases, which may assist, in some measure, to mark out the various stages and complications of the disease.

On the 13th of December last I was called to see Master A. H., aged three years, who had been feverish for two days previously. On inspection, I perceived that the inside of the lips and cheeks was dotted over with small patches of a light gray exudation, attended with a red, spongy condition of the gums, and a thick, creamy coat on the tongue, with a slate-coloured

streak down its centre. There was no acute fever; constitutional symptoms slight; the appetite and strength being little deranged.

16th. Subacute fever; appetite and strength failing.

17th. To my surprise I found that fever of the asthenic type had set in, and almost entire prostration of the vital powers. The exudation had spread over the palatine vault, tonsils, and pharynx, and assumed a more compact, curd-like appearance.

18th. The lymph material had increased circumferentially, and by additional layers; the nose was full and tumid; there was a slight acrid discharge from the nostrils, and fœtor of the breath. The glands about the neck and throat had become swollen and tender; the neck increased in volume from effusion of serum into the areolar tissue; breathing hurried; prostration extreme.

19th. Pulse steady and full; tongue beginning to clean from the tip and edges.

20th. The false membrane began to detach itself irregularly here and there, leaving the mucous surface polished, and of a bright red colour.

23rd. Entire separation took place, with the exception of a few small patches on the tonsils; the general health and appetite improved rapidly from the 19th. I may add that throughout the attack the urine was free, and the bowels regular.

Treatment.—At the onset a mercurial purgative; the free application of the solid stick of nitrate of silver daily to the patches; a blister from ear to ear, one inch and a half in breadth, followed by relays of linseed poultices; a tablespoonful of the ferro-chloride mixture every third hour. The strength was chiefly maintained by a liberal supply of beef-tea and wine. Due care was taken not to poison the patient with his own exhalations, by the abundant use of chlorides, cleanliness, and free ventilation.

On my first visit the aspect of the patches seemed like the mild form of acute gangrenous stomatitis, and might be confounded with it; differing, however, by the absence of a breach of the mucous surface, the dark gray gangrenous slough, the loss of substance, and the presence of effusion into the areolar tissue of the neck; the child also having been perfectly healthy up to the time of the attack, and strict attention paid to hygienic means. Scarlatina and epidemic catarrh prevailed in the neighbourhood at the time: a similarity of cause may have produced these different affections.

Other cases reported as diphtheria (some fatal) occurred in

this and the adjoining counties, none of which, however, came under my observation.

Since I wrote the foregoing I was called, on the 24th January, to see Master J. H., his brother, aged seven years, a precocious child of delicate constitution. The chief features in his case were, that the lymph spots were small and few, confined to the left tonsil and pharynx; rapid and intense prostration; wasting of the whole body, and epigastric tenderness; followed by meningitis of a well-marked type. Having relieved the epigastric tenderness, my attention was chiefly directed to the treatment of the head symptoms, at the same time supporting the strength with beef-tea, jellies, and white wine whey. From the 31st of January to the 6th of February he improved most steadily in every respect: when the debility induced by the diphtheria called into action the subacute variety of hip-joint disease, which, however, is yielding to treatment.

ART. XV.—*On Cancer.* By MAURICE HENRY COLLIS, M. B. T.C.D., M. R. I. A., F. R. C. S., Surgeon to the Meath Hospital and County Dublin Infirmary; Examiner in Surgery to the Queen's University in Ireland; and Member of the Council of the Surgical Society.

(*Concluded from* vol. xxvi. p. 268.)

IT may be well to examine in what sense the much used phrases of diathesis, blood poisoning, constitutional infection, &c., are applicable to cancer. That they have a certain meaning is, I presume, evident from their general acceptance, but it is surprising how vaguely we are prone to apply them; such terms have a certain convenience when used to conceal our ignorance of the cause and origin of disease, but I fear they often stand in the way of a scientific and accurate search after truth. In the case of cancer this habit of vague generalization has helped to cause many dissimilar growths to be grouped together under one name, or, to speak more correctly, has confounded them as identical with one another and with cancer. It ought not to be a matter of surprise, then, if those who first discovered their dissimilarity should have gone too far in asserting that a certain form of cell-growth was alone characterized by clinical malignancy. Although we now believe that Lebert was wrong in pronouncing the cancer cell as the specific malignant element, because it was the specific cancer element, we cannot be surprised at it;—opinion when gravitating from error often oscillates beyond the middle point where truth is to be found. Lebert's later

writings, I believe, show this to have been the case; and that, while still upholding as strongly as possible the diversity of many cancroid growths from cancer, and each other, he does not now couple clinical malignancy with one growth, to the exclusion of others. I believe that a deeper investigation into the mode of their origin will and does reveal points of analogy as well as of difference between these various growths, which will bring us a step nearer the truth than we have yet attained, and will show a simplicity in the operations of disease running parallel with its extreme multiformity, and analogous to the uniformity and diversity of type in healthy organizations. I think we can see some shadowing forth of a law in all these diseases, which will, some time or other, not only explain their causes as far as they may be explicable, but, perhaps, may also lead us to their cure. I am daily more convinced that we have much more to learn on these subjects than we yet know; that our knowledge of the causes of disease of all kinds is still in its infancy.

Every thinking student of pathology must have been often startled by the analogies which spring up, phantom-like, between two apparently distinct diseases, as his mind may chance to be directed to them at the same time—analogies which sometimes darken, but more frequently throw light upon, their causes or treatment; and so, in studying the group of cancer and cancroid diseases, while the mind may be purposely directed to their differences, with the practical end in view of pointing out or discovering clinical diversities of sign or symptom in each; yet the strong analogies which subsist between them are also forced on the mind, and prevent the mischief which a one-sided view would tend to produce.

Impressed with these thoughts, I shall endeavour to examine into what is meant by the terms above alluded to, such as constitutional infection, blood poisoning, diathesis, &c., as applied to cancer. Similar terms are used in reference to pyemia, syphilis, the exanthemata or other diseases, but we can scarcely suppose in the same sense. Blood poisoning in pyemia implies one of two very different conditions: either the blood is poisoned by the absorption of putrid gases or fluids, the products of decomposed pus; or the formative or organizing power of the blood is altered so that pus is deposited from it in various parts of the body, in place of healthy secretions or exudations. Does anything analogous to either of these conditions exist in the blood of a cancerous patient? If so, does it precede and cause, or does it follow, from the cancerous deposit? Again, constitutional infection, as applied to syphilis,

implies a blood poisoning of so extreme a degree that the blood and all the body of the patient are so altered as to be incapable of healthy action; so much so that the infection is communicable as an hereditary taint. Is this true in any sense, and in what degree in the case of cancer? I do not think it is necessary to discuss the term diathesis; all will admit it to be merely the algebraic sign of an unknown quantity.

To examine the above propositions in order, let us see if there be anything in cancer analogous to the absorption of the decomposed elements of pus into the blood. To this, with much diffidence, I would answer in the negative. As regards the unbroken cancer cell and its nucleus, we have, equally with the pus corpuscle, plain evidence of the impossibility of such an occurrence as their absorption into the general circulation, in the fact of their great size. This renders it impossible for them to enter the capillaries at all, and I think all will allow that it is not probable that they enter the larger vessels except by a breach in the continuity of the latter. Cancer cells, like pus globules, are found in the interior of vessels, but in neither case have they entered the vessels by a process of absorption; nor have we any clear proof as yet that the lining membrane of the bloodvessels has a power of secreting cancer cells similar to what it appears to possess in the case of pus. No doubt, cancer has been found in the interior of bloodvessels in mass, as well as in the form of separate and isolated cells, but in both cases the diseased product has been found to have eroded the vessels, and to have thus got in by producing a breach of continuity.

But it may be said that the decomposed elements of cancer cells may be absorbed, and produce blood-poisoning and propagation of the disease in distant parts. There are two reasons why I cannot accept this proposition, offered, as it is at present, without proof: first, the phenomena of distant infection can be otherwise accounted for; and secondly, the process of decomposition of cancer cells is a chemical process in nowise different from the mode in which the healthy cell structures of the body perish. I have in a former paper spoken of the two-fold manner of their death, either by drying up and splitting into fragments, or by an oily softening and breaking up. We do not find any evidence that these processes are productive of irritation in neighbouring parts, nor can we suppose that the absorption of their chemical elements injures the system generally by assisting in the propagation of the disease.

Blood poisoning, then, as applied to cancer, cannot be said to be proven in the sense of the absorption of the decomposed

cancerous structure, and consequent deterioration of the blood and body generally: those who believe in such a result of cancer have yet to prove their case. But in the other and far different sense in which the term blood poisoning is equally used, it must, I think, be answered that the term is applicable to cancer; and not to cancer only, but to all other diseases in which the formative power or vitality of the lymph is so altered as to develop unhealthy organisms. Whether we look upon cancer as primarily local, or having its origin in the blood, we cannot deny that, so far as the plasma of a cancerous tumour is concerned, it is not only poisoned, but must be capable of poisoning the blood; for let us suppose it local in its origin (as in truth I believe it to be), this unhealthy cell, nourished, let us say, for argument's sake, by healthy lymph, must interchange by endosmose and exosmose with the healthy lymph, and thus impart to it some of its own peculiarity. If the cell be of active growth, rapidly absorbing and returning fluid, its power of poisoning will be rapid, and the lymph in its neighbourhood becomes imbued with its peculiarity, and when it organizes takes the the same form. Meanwhile, the cells get no healthier, for it is a law of growth that the higher organism will impress its stamp on the lower or merely organizable material, without losing any of its own specific character. This law meets us in the exanthemata, in syphilis, and in many processes of health and disease; as long as the cell, whether of lymph, or cancer, or any other, possesses vitality, this process goes on, in some slowly, as in cartilage and in scirrhous cancer cells; in others, rapidly, as in epithelium and encephaloid cells. Rapid growth, however, does not imply a rapid general poisoning, for the local growth, being rapid, draws upon the blood largely for plasma, and gives little to it; nor is the amount of poisonous matter at all in proportion necessarily to its power of development: for example, the smallest quantity of lymph from variola or vaccina will rapidly alter the lymph of the entire blood, and syphilitic and other poisonous fluids produce their specific results when introduced in marvellously small quantities. I think, also, we find that the rapidly growing encephaloid which pushes aside the tissues in its eagerness of growth, and which consumes all the lymph it can get from the blood, is much less prone to poison the distant glands than the slow-growing, irritating scirrhus, which keeps up a constant low inflammation of the lymphatics. But in neither case is the general poisoning at all rapid in cancer, as a rule. The current is rather from the vessels than into them, and the poisonous exosmosis from the cells is expended on the lymph already effused into the tissues

rather than on what is still contained in the vessels. It is when the skin becomes implicated that we find evidence of glandular poisonings in cancer: the skin and lymphatics are so intimately united that the moment the cells shoot into the interstices of the one, the others begin to show signs of irritation; the dense structure of the skin assists the general poisoning also by limiting fresh effusions, and compelling the poison to feed on the healthy natural tissues. Hence, the skin is most implicated in scirrhus of slow growth, and least in rapid encephaloid. Contrast the dense retracted nipple of the one with the pendulous nipple of the other; the skin drawn in, puckered, and condensed by chronic irritation in the one; distended and thinned, but still soft and delicate, in the other.

Reasoning and experience, then, alike teach us that a certain amount of blood poisoning may exist in cancer, but that it does not so exist, as a result from the decomposition of cancer cells; it rather originates in the vital interchange which goes on between the fluids of the body and the cancer cells while still living and active. Nor will this slow and very often limited action of the cells account for the origin of the disease in the least. It explains both the general cachexia which results from extensive cancerous deposits and the somewhat opposite fact of the infrequency of a general outbreak of cancer. A downright poisoning of the blood to the extent of producing cancerous deposits in several parts of the body at the same time is most unusual. This fact, observed and commented on by many, has been read erroneously by some, as if it implied that the cancerous tumour was a kind of reservoir of cells, that its removal generalized the morbid product, and was therefore an improper practice. But I rather think that this rareness of general cancer is to be accounted for, as I have said, by the slowness with which the morbid fluid returns into the blood vessels, and the fact that the lymph which lies free among the tissues in the neighbourhood appropriates it. In admitting, then, that the term blood poisoning has a certain amount of truth as applied to cancer, it must be understood to do so to a limited degree, and as a secondary effect of the disease, not by any means as accounting for its origin.

I have said above that I look on cancer as of local origin. I find the cancer cell always existing as an interstitial body, attributed generally to an injury, and often growing rapidly after fresh violence. These characters it possesses in common with many other cells. The simplest of these is the lymph cell. Between it and the cancer cell there is a wide range of difference, and a comparison of the two extremes would not

show us much in common. But among the intermediate forms of cell growth we find such slight shades of difference that we are ultimately forced to confess that the small lymph cell, with its little nucleus and the comparatively large cancer cell with nucleus larger than the entire lymph cell may have a common origin. I think we may go further, and develop the following law from a comparison of these various cells—namely, that the farther the form of any cell departs from the healthy type, the more malignant is its nature.

The healthy lymph cell rapidly develops itself into a fibre; if it does not possess sufficient vitality to do so, it may be converted in one case into a pus globule, in another into the cell of tubercle, while in other cases it may take on itself an independent activity of growth, and become a fibro-plastic cell or fibre, or a cancer cell, &c. I would here recall the fundamental difference which exists between these cells and epithelial or epidermic cells. The latter are secreted by a membrane, and do not originate as interstitial deposits, though under certain circumstances they may by their presence produce inflammatory effusions, which serve to nourish and extend them. Epithelial cells are not found to take the form of fibres or in any way to imitate the development of the lymph cell; whereas in all the genuine interstitial growths we find this resemblance in form to the various phases of organized lymph, Sometimes the tendency to become a fibre goes no farther than the slight elongation of the cell, so that it becomes oval or oat-shaped. In another form of growth the fibre cell differs in scarcely an appreciable degree from the healthy lymph cell when developed into a fibre. Even in the genuine cancers we find there is a tendency in the cells to develop into caudate or fibre-like forms, often wonderfully similar to the ordinary lymph fibre, though much larger and readily distinguished by their very large nucleus.

Now the simple fibrous tumours which are composed of ordinary fibrous tissue appear to differ from the organized plastic material of chronic inflammations no further than that they possess a sort of independent vitality. They are interstitial deposits of organized lymph, but they have, in addition, a power of drawing fluid material from the blood, and of appropriating it, not merely to the repair of their waste, but to the increase of their bulk. This inherent independence of vitality, or power of appropriation for the purpose of enlargement, seems to be the essential difference between morbid growths or tumours and simple inflammatory exudations. Now, were this tendency merely the result of a constitutional vice (either here-

ditary or acquired), we should expect all inflammatory exudations or infiltrations occurring in the patient to present a similar abnormal structure. If, for example, the cause of cancer be some constitutional tendency to the development of lymph after a certain morbid fashion, we should expect all lymph that became extravasated in such a patient to take on a similar cancerous development. But such is not the case. The wounds of a cancerous patient will heal kindly, and, except they are in the neighbourhood of cancerous matter, they take on no cancerous action, nor is the well-known fact that the bones of cancerous patients sometimes remain ununited, a proof to the contrary; for in most cases of the sort, cancerous degeneration of the bony tissue has preceded, and not resulted from fracture. This independent vitality of tumours, then, is not to be accounted for by referring it to a constitutional tendency; nor, on the other hand, is the special form of morbid product to be accounted for by the local influence of neighbouring forms of healthy tissue; for then we should have the same kind of tumour always occurring in the same situation. The breast, for example, should be the seat of adenoid or chronic mammary tumour only, and cancers, which resemble none of the ordinary constituents of the body, ought not, on this theory, to exist at all.

I have no explanation to offer of the fact that lymph interstitially deposited in an organ will sometimes be absorbed, and sometimes become organized; nor of the fact that in the latter case it may take on one or other of many forms of organization. Nor can I explain how it becomes possessed of an independent vitality, and internal power of growth, but I wish to get rid of erroneous views on the causes, whether remote or proximate, of tumours, views which arise from an imperfect acquaintance with nature, and defective reasoning. It is better for us to stop short where our knowledge ceases than to run on into the realms of speculation. More benefit is derived from one careful examination of a tumour than from all the speculations with which books abound.

To proceed to the treatment of cancer and cancroid, on which its nature and origin must, at least ought, to exercise much influence. It is manifest that epithelioma being in origin an hypertrophy, and only by accident of position an interstitial deposit, should be amenable, as we find it is, to such treatment as will remove the diseased growth completely. The masses of epithelium spring from, and are based on, a secreting surface of skin or mucous membrane. As the base of the epithelial mass extends, so does the membrane; and *vice versâ*, as the membrane is hypertrophied, so does it secrete greater quan-

tities of cells. If caustic be selected to destroy the diseased mass, it must be of a nature to penetrate the convolutions of epithelium, and destroy the morbid surface of integument. This will require powerful and most likely repeated applications of the severer fluid caustics. Any one who has tried to destroy a common wart will know how obstinately it resists all the milder caustics[a]. Even acetic acid is long in penetrating the hard and horny masses of epithelium, though it has a stronger effect on the cell walls than most other substances. I have not much experience of caustics, as I prefer the knife; but in cases where the knife is inadmissible, I have used the muriate of antimony, caustic potash, and sulphuric acid. The first of these is, perhaps, the best in epithelioma of the mucous membranes, as it acts in small quantities, and is not so unpleasantly diffusible. The kali is applicable to the small, hard, and half horny masses which lie on the edge of the lip, if they can be completely burned out by one application of it. Sulphuric acid made into a cream with flour, or, what is perhaps better, with sulphate of zinc, will destroy the masses of epithelium in ulcers of the skin known as chimney-sweeps' cancer. When a comparatively healthy surface is thus obtained, any remaining portions of the disease on the floor of the ulcer or along its margins may be destroyed by a paste of sulphuric acid and saffron or flour, or by the Vienna paste; or, if this be considered too painful, they may be excised

Of the chloride of zinc as a caustic I have no experience. In the majority of cases of epithelioma, free removal by the knife is preferable, as early as possible before the process of ulcerative absorption has made too large a chasm. It may seem at first surprising how large a portion of a lip or cheek may apparently be implicated and require removal, and how readily the chasm is filled by traction on neighbouring parts. If it be remembered, however, that the mass of disease combines a large amount of hypertrophy with more or less ulceration, this will be easily understood. The loss of substance by the operation is always less than it seems, and bears proportion rather to the extent of the ulcerative process than to the apparent mass of disease. We have every reason to be satisfied with the result of early operation in cases of epithelioma of the skin, including the so-called cancers of the lip. Relapse is extremely rare when the disease is fairly removed. I have seen many patients who had been operated on years previously,

[a] Velpeau gives a good *resumé* of the various caustics in his work on Diseases of the Breast.

eight and ten years in some cases, in whom the cicatrix is fine and pliable, and free from any appearance of relapse.

With regard to epithelial disease of the mucous membranes, they appear to be much more rapid in their progress, and, so far, are less easy of complete removal, and more liable to relapse. The moisture of mucous membranes favours cell growth, and, combined with their greater vascularity, will account for this. Ligature of epithelioma, must necessarily be a bad plan of treatment, unless the ligature is capable of completely enclosing and completely strangulating it, for any communication of vessels between the diseased and sound parts, combined with the inflammatory action set up by the ligature, would unquestionably tend to propagate the disease to the sound side of the ligature. This objection would scarcely apply to the écraseur, which removes all it embraces, and leaves no time for an interchange between the healthy and diseased parts. Care should be taken, however, that all the infected parts are included within the chains of écraseurs. It remains only to speak of the actual cautery. This is a most efficient means of removing epithelioma, though only applicable tc small buttons, such as spring from the floor of a cicatrizing wound after the removal of the bulk of the disease by some other agent. The cicatrix of a burn is a most unfavourable nidus for the development of this disease. I have never seen epithelioma spring up in such a dense structure. Even when it grows in sound skin beside a cicatrix, the cicatrix will act as a bar to its progress. I have seen the masses of epithelium flattened, and convoluted, and compressed against such a cicatrix, unable to infect it, and removing it by ulcerative absorption with extreme slowness. Bone itself is much more easily absorbed than the cicatrix of a burn; and as the actual cautery gives rise to this dense and tough form of cicatrix, it may be safely employed where it is not objectionable on the score of excessive pain.

The sympathetic enlargement of distant glands is no bar to operation, and is easily distinguished from poisoned infiltration by their even, oval, smooth outline, as contrasted with the nodulated, rough, or globular enlargement of poisonous infiltration; besides, epithelioma seldom infects a distant gland, and only in very advanced stages of the disease. It will poison the submental glands in cancer of the lip or the gland at the angle of the jaw, according as the growth is situated in the centre or angle of the lip; or the disease in the prepuce may poison the glands of the groin when it has existed some time, but the enlargement of distant glands will be found generally to depend on the ulceration of the integument, and not on the hypertrophy of the

cuticle, and it then presents no obstacle to treatment in the way of removal.

When these ulcers are too far gone to admit of removal, a good remedy for their stench and putrid condition will be found in dressing them with dry dressings; poultices and moist applications favour cell growth; and rapid cell growth only spreads the disease, and causes an accumulation of putrid pus and decomposed cells. I accidentally discovered, when testing cells with various reagents, that the dry powder of bitartrate of potash has a remarkable chemical affinity for the contents of these cells, and causes their disorganization most completely. I have since tried it in several cases as a dressing in foul ulcers of various kinds, and find it to surpass my expectations in keeping them clean and free from excessive discharge. In some instances that I have used it, the sore has gathered in and become reduced to less than half its former bulk; this has occurred in more than one case of Jacob's ulcer of the eyelid, and in ulcers of the leg. I do not say that it will cure any of them, but it certainly is of great use as a dressing; it is quite painless, which is of incalculable advantage in cases which require a daily renewal of the application. In cauliflower excrescence of the uterus and villous cancers of the bladder, it might be of great service in diminishing foul and wasting discharges, and so may indirectly aid in prolonging life. In such cases a quantity of it may be suspended in water or other mucilaginous fluids, as it is not ready of solution. In cases of external cancroid ulcers, it is a cleanly and efficient substitute for filthy poultices.

The views which I entertain of the nature of all the infiltrating cancroids, and of cancer, of necessity lead me to the conclusion that the knife is the only absolute remedy for them. Caustics, as producing increased irritation, and consequent effusion of lymph round and in contact with the morbid growth, must lead to the spread of the disease into parts previously sound; the more so as they are seldom used in small tumours, and in large tumours cannot be employed in quantity or concentration sufficient to destroy the entire mass as with a blow, before the vascular excitement they call forth sends on the germs of disease in widening circles. As palliatives they may be of use in destroying for a time a portion of a tumour which it is not advisable to cut away; though more painful than the knife, they are safer when large fungating masses have to be removed, because they give rise to less hemorrhage; but they can never eradicate the last germ of existing disease with the certainty of the knife, and the cicatrix which they give rise to

is a favourite nidus for the deposit of fresh cells. The only remedy for cancer, as far as we at present know, is the knife, used as early as possible in every case in which even a doubtful tumour, however small, gives sign of growth. I have, however, known cancers of the breast to remain dormant for years, and then, on receipt of injury, suddenly to spring into active vitality, and the knowledge of this fact may give ground for doubt as to the fit practice in the small quiescent tumour. In such cases it is best to leave the decision to the patient or her friends, after fully acquainting them with all risks. The surgeon should never press an operation unless it should be absolutely essential, and then he is better able to urge it with all authority.

The cases in which operation can reasonably be expected to effect a cure are unfortunately few. The rapid growing encephaloid or soft cancer, which pushes aside the tissues, and thins the skin to bursting before it implicates it, or irritates a gland, is the most favourable of all cancers for permanent success. Rapid or acute cancer in the old does not come under this rule: it quickly infiltrates all parts around it, and, having no sort of cyst, is impossible to isolate. Besides, it wears the patient away with fearful rapidity, and often kills him with sheer pain before it ulcerates. Its seat is often in the parotid region and internal organs.

Once the extremely acute type is passed, cancer ceases to have even a false cyst; small cancers, however, may be found, if not quite rolling among the tissues, still attached, but loosely, by roots of no great length or number, and such may be readily removed, and with a prospect of success, if the incision be a wide one. Beyond these, the cases for a favourable prognosis are few. Scirrhus for a long time enjoyed the credit of being the safest to remove. This grave error, by causing relapse and disappointment to be frequent, brought disfavour on operation in general. A sufficiently extensive operation in cases where the skin and deep fascia are not adherent, and where the nipple remains more or less pendulous, will give some chance in a person otherwise in good health; even if the disease returns, it may do so in an internal organ, and may produce its fatal result in a less painful mode. Where the skin is infiltrated and coarse-looking, or set with beads of disseminated cancer, when fibrous bands extend to the axilla, when the glands are involved or the tumour is sessile, operation should not be attempted; local relapse is certain, and rapidly fatal. When the growth is very chronic and small, in a weak, atrophied individual, the chances are that an operation will convert into an active agent of destruction a comparatively harmless tumour,

which, if let alone, would have lasted for years with little local alteration, and little, if any, injury to the patient's life. In these very chronic cases removal does no good, and may do much harm. Something may be done by leeching and cold, to reduce the activity of rapidly growing cancers. Leeches should never be applied to the semi-encysted encephaloid, but lardaceous cancer and infiltrating encephaloid may be kept at bay for a time by them, and by refrigerating lotions.

General treatment, based on pathology, will consist of every means which can improve the quality of the blood: fresh air, nourishing food, and iron tonics, and relief from pain by means of opiates, combined with a calm and cheerful disposition, form about the entire of the general means to be relied on as useful adjuncts to local treatment. Mercury, iodine, and other medicines which deteriorate the blood, especially the fibrinous elements, should be scrupulously avoided.

To those other interstitial growths which cannot be classed as cancer, although they partake of a malignant nature in varying degrees, similar rules will apply. The majority of them are more akin to simple fibrinous formations than to cancer, and are proportionately harmless. They require, however, very careful and complete removal, and, even with the greatest care, will occasionally recur in situ. One or two cases seem to have recurred in distant organs, but they are doubtful, and enough is not known of the group to warrant any dogmatic assertions. Every year reveals to us varieties of organization, but so far all can be referred (by comparison with one another) to the group intermediate between simple fibrous or fibrinous tumours and cancer proper. They have their seat in various parts of the body; parts exposed to injury, as the testis and other glands, are subject to them; and sometimes they appear in parts of the areolar tissue, where no glands exist. Such was the case of Doyle, mentioned in a former paper, from whose foot I removed tumours on four different occasions, finally curing him by making sure of perfect removal; he has now been five years free from relapse; the cicatrix meanwhile pressed on, but not irritated, by the contact of his shoe. I have seen two cases of large fibrinous concretions, which appeared as if successive hemorrhages had occurred into the body of the gland, each effusion of blood becoming organized in a strange, irregular manner, and the whole mass closely resembling, to the unaided eye, a firm encephaloid cancer; these had resulted from injury, and were highly malignant, though not cancers. They exemplify what I mean by saying that these infiltrating growths are various forms of fibrine possessed of independent vitality, and taking

on various forms of development. I think this point of view will be useful in classifying them; they are at present rather heterogeneously mixed up, some with cancer, some with fibrous tumours, and under an infinity of names. I would suggest the name of fibrinous tumours as a good generic name for them. They cannot be all called malignant, for many of them are very harmless if properly handled; nor can they be called fibrous, for many are composed of cells only. It would be well that the name of cancer were confined to those tumours which present the now well known histological elements of cancer.

This cell is not to be recognised in every case without some care. There are many sources of error, as I have already pointed out: bad glasses, imperfect observation, dogmatism of the ignorant (including the best of microscopists), but patience and careful observation will in time establish what it is marvellous that any should deny, viz., a specific structure to diseases of such peculiar aspect.

Meanwhile, let us not confound malignancy and cancer as identical, but remember that the simplest form of tumour is occasionally endowed with destructive powers, and that the term "malignant" only implies a clinical, not a pathological fact. I shall conclude with a repetition of the law which seems to me to govern, as a general rule, all tumours which originate as interstitial or infiltrating deposits of independent vitality, namely:—That they are all modifications of plastic effusions, and that the farther the cell which forms their main element departs from the type of the healthy lymph cell, the more clinically malignant is their aspect.

Art. XVI.—*Case of Infantile Syphilis.* By R. W. O'Donovan, M. R. C. S. L.

June 27, 1857. I attended Mrs. ——, a respectable young woman, in her first confinement, she was fourteen months married; her labour extended over a period of thirteen hours, the first stage being unusually long, but not requiring particular attention; her child was well developed; apparently strong and healthy. Mrs.—— recovered well, and has an abundant secretion of milk.

September 25th. The child was brought to me for advice, having been ill nearly a month; it presented the following symptoms:—General appearance soft and ill-thriven; eyelids red with an encrusted discharge; it snuffles; the lips are chapped and red, particularly the upper lip and the angles of the mouth;

the skin of the scrotum, inside of the thighs, and round the anus is red, glossy, smooth, and cracked in patches; the voice is harsh and rough, as if the fauces were dry or parched; the bowels constantly irritable.

Having seen some cases of syphilis in children, and having a painful conviction that the little sufferer was contaminated with the disease, I felt it my duty to call on the mother and investigate the history of the case, before I prescribed for it. Without acquainting her with my suspicions, I delicately inquired whether she ever had sore throat since her marriage, or any blotches or sores on any part of her body; she assured me she never had any, and attributed her child's illness to cold; I examined her breasts, which were healthy. I also particularly questioned the father, who frankly told me that about six months before his marriage he had an attack of gonorrhœa, but never had a sore on his genitals, or a bubo.

I prescribed the mercury and chalk in small doses twice a day, and black wash to be applied to the scrotum and other excoriated parts, the lips excepted.

From the statement of the parents I conceived some doubt of the correctness of my own opinion, and consulted, by letter, Dr. Montgomery of Dublin, who in the kindest manner gave me the benefit of his scientific research and great practical experience, and strengthened my wavering judgment as to its true syphilitic character.

The child remained under my care for two months on this treatment, gradually improving constitutionally and locally. I then lost sight of it; but in the following January it was brought to me again, suffering from large flat condylomata elevated above the surrounding surface, moist, and secreting a foul discharge, with a pale copper discoloration over the abdomen; its general health was not so much affected as when I first saw it. I again ordered the gray powder in three-grain doses twice a day, the condylomata to be anointed with mild mercurial ointment, and a warm bath to be administered three times a week. Under this treatment the child got quite well, and continues so up to this date.

Is this case to be termed genuine or pseudo syphilis? Either view is accompanied by perplexing anxiety, and calls for serious consideration. That the symptoms *per se* would place it under the former denomination, there can be no question. And, admitting this for argument, we naturally ask how the infant's system became poisoned. The statement of the parents, I believe, is not open to doubt: neither ever had sore, eruption, sore throat, or other symptom of primary or secondary lues.

The child could not have contracted it from the servant, whom I observed to be a healthy young girl, about 15 years old; neither was the servant contaminated by the child, though in constant attendance on it, nor were the mother's nipples affected. Can it be possible that the supposed gonorrhœa of the father consisted of a chancre in the urethra, and that he poisoned the fœtus in utero? Against this supposition, we have his statement, that he was well some months before his marriage, and that he never had a secondary symptom; but if the poison was so derived, is it probable that the mother would have totally escaped, or likely that her first child would have come to maturity?—and it will be borne in mind *she never aborted*. The history of infantile syphilis is opposed to such a possibility.

Is the disease to be looked upon as "pseudo syphilis"? In adult life, no doubt, cases will sometimes present themselves, where the symptoms or appearances will frequently represent the characteristic appearances of secondary symptoms. I was once consulted by a young man of strict veracity, who had excrescences about the anus, and patches of psoriasis over the abdomen and lower extremities, who solemnly assured me he never had a sore, nor could I detect the cicatrix of one, after the most careful examination. He got well under the use of mercurial ointment and iodide of potassium. Yet this was a case which might be recorded as syphilitic; and I am sure many such cases must present themselves to the practical surgeon. Irregularity of diet, with many other obscure causes, vitiated atmosphere, dirty habits, &c., may account for such appearance in the adult; but in the present instance we see an infant at the breast of its own mother presenting a train of symptoms, in perfect grouping, acknowledged by the highest authorities to represent the formidable disease—infantile syphilis.

One consolation, however, is afforded by the result of the treatment, viz., that, whichever name be applied to the disorder, it yields to the steady use of mercury.

Apart from the medical view of the case, another and if possible more important phase presents itself for consideration and reflection. In a medico-legal aspect such a case may become one of great difficulty, in all probability dividing the opinions of the highest authorities. Supposing such a child to be given to nurse, and that in due course these symptoms made their appearance, how would the unfortunate woman escape the unmerited censure of being the means of diffusing with the nutriment of life this hideous disease into the system

of the innocent babe intrusted to her care; and what of the woman herself, intrusted with the nursing of an apparently healthy child? In a little time she becomes the victim of her nursling, and before she has any conception of the fact, becomes the blight of her own family, infecting her husband and future offspring. It would be well for society if this could be considered an ideal view, but recorded cases both at home and on the Continent prove its reality.

Art. XVII.—*Notes on Gunshot Injuries, with a Return and Detail of Cases from the Mutiny in India; and a Description of the Preparations illustrating this subject contained in the Museum at Fort Pitt.* By G. Williamson, Staff-Surgeon.

The wounded of the Cavalry and Infantry of the Line, consequent on the Mutiny in India, who have hitherto arrived in England, having been specially placed under my charge for observation, record, and report, as well as treatment when that was further necessary; and the arrangement of the specimens of gunshot and other injuries incidental to active military life, to be found in the Museum (at Fort Pitt), having at the same time occupied my attention; I am induced to believe, that from these two sources of information opportunities have occurred to me, of which the results may be useful to military medical officers, and not without interest to the profession generally. In the task of classification of those wounds and injuries received in action, I have to acknowledge, with thanks, the assistance of the principal medical officer at Fort Pitt, Inspector-General Taylor, C. B., whose classification[a], proposed during the Crimean War, has been adopted.

The following return, based on that classification, will be found to present a very concise summary of the nature of all the cases of gunshot and other injuries received in the actions occasioned by the Mutiny in India, and will serve at the same time as an index to the method I propose to pursue in submitting the remarks I have to make on the several varieties of gunshot wounds.

The men, on arrival from the long sea voyage from India,

[a] A Classification of Wounds and Injuries received in action, proposed for use in Military Hospitals, by J. R. Taylor, C. B., Deputy Inspector-General, Camp before Sebastopol, June 25, 1856.

had recovered their general health, and the greater number of them had their wounds healed.

The tabular form, completed and closed up to the 31st of March, 1859, shows that the total number wounded which had arrived up to this date was 603; of these, 193 have been sent to duty; 67 to modified duty[a]; 263 invalided; 7 died; and 73 remain undisposed of.

Of the fatal cases since landing in England, 1 was a case of gunshot wound of the head,—cause of death, chronic hepatitis and ascites; 2 were cases of perforating gunshot wound of the lung,—1 of which died of gangrene of the opposite lung, and 1 of phthisis; 1 case of partial fracture of the humerus,—cause of death, pyemia; 1 case of compound comminuted fracture of the femur, ball lodged between the ends of the united fracture,—cause of death, chronic dysentery; 1 case of amputation of the arm,—death from gangrene of the stump; 1 case of amputation at the middle of the thigh,—cause of death, necrosis and exhaustion. Besides these, 1 case (an artilleryman) died at Gravesend, from gunshot fracture of the tibia, followed by sloughing, but not included in the return.

DESCRIPTIVE NUMERICAL RETURN *of Wounds and Injuries received in Action during the Mutiny in India, and the Sufferers from which were landed in England, at Fort Pitt, up to the* 31*st March,* 1859.

Classification and Specification of Wounds and Injuries.	Landed at Gravesend.	Discharged to Duty.	Discharged to Modified Duty.	Invalided.	Died.	Remaining undisposed.
1. Gunshot Wounds of the Head:—						
1. Contusions and simple flesh-wounds of the scalp, ...	2	2				
2. With contusion or fracture of the cranium, without depression, ...	5	3	. .	2		
3. Ditto, with depression, or displacement of both tables, ...	8	2	1	3	1	1
Total, . . .	15	7	1	5	1	1

[a] An order, dated 20th August, 1858, was received from the Assistant Adjutant-General, stating that men who had been wounded, and so far disabled as to be unfit for the active duties of a soldier, might still be very efficient as orderlies, messengers, clerks, &c., and were to be retained in the service for that purpose.

Classification and Specification of Wounds and Injuries.	Landed at Gravesend.	Discharged to Duty.	Discharged to Modified Duty.	Invalided.	Died.	Remaining undisposed.
2. Gunshot Wounds of the Face:—						
1. Simple flesh contusions and wounds, .	1	. .	. .	1		
2. Penetrating, perforating, or lacerating the bony structures, without lesion of important organs, ...	3	3				
3. Ditto, with lesion of the eye, ...	12	3	. .	7	. .	2
4. Ditto, with fracture of the lower jaw,	6	2	1	3		
Total, . . .	22	8	1	11	. .	2
3. Gunshot Wounds of the Neck:—						
1. Simple flesh contusions and wounds, .	7	6	. .	. .	. .	1
4. Gunshot Wounds of the Chest:—						
1. Simple flesh contusions and wounds, .	5	5				
2. With injury of bony or cartilaginous parietes, without lesion of contents, .	3	2	. .	1		
3. With lesion of contents by contusion, or with non-penetrating wound, . . .	2	2				
5. Perforating contents, ...	9	5	1	1	2	
Total, . . .	19	14	1	2	2	
5. Gunshot Wounds of the Abdomen:—						
1. Simple flesh contusions and wounds, .	4	4				
2. Contusion, or non-penetrating wound, with lesion of stomach, ...	2	2				
3. Penetrating or perforating, with lesion of intestine, ...	2	1	. .	. .	. .	1
Total, . . .	8	7	. .	. .	. .	1
6. Gunshot Wounds of Back and Spine:—						
1. Simple flesh contusions and wounds, .	3	2	. .	. .	. .	1
2. With fracture of vertebræ, without lesion of spinal cord, ...	6	2	. .	2	. .	2
Total, . . .	9	4	. .	2	. .	3
7. Gunshot Contusions and Wounds of the Perineum and Genital and Urinary Organs, not being at the same time Wounds of the Peritoneum, ...	3	2	. .	. .	. .	1
8. Gunshot Wounds of the Upper Extremities:—						
1. Simple flesh contusions and wounds, slight, ...	39	30	6	6	. .	5
,, ,, severe,	8					
2. With contusion and partial fracture of long bones, including fracture of the clavicle and scapula, ...	30	13	4	5	1	7
3. Simple fracture of long bones by contusion from round shot, ...	2	. .	. .	2		
Forward,	79	43	10	13	1	12

Classification and Specification of Wounds and Injuries.	Landed at Gravesend.	Discharged to Duty.	Discharged to Modified Duty.	Invalided.	Died.	Remaining undisposed.
Brought forward,	79	43	10	13	1	12
8. Gunshot Wounds of the Upper Extremities:—						
4. With compound fracture of humerus, .	17	. .	3	13	. .	1
,, ,, radius, ...	18	1	2	14	. .	1
,, ,, ulna, ...	7	2	1	3	. .	1
,, ,, ulna and radius,	3	1	. .	2		
5. Penetrating, perforating, or lacerating the several structures of the carpus and metacarpus, ...	26	5	7	13	. .	1
6. Dividing or lacerating the structures of the fingers and thumbs, ...	9	4	. .	2	. .	3
Total, . . .	159	56	23	60	1	19
9. Gunshot Wounds of the Lower Extremities:—						
1. Simple flesh contusions and wounds, slight, ...	87	63	6	13	. .	18
,, ,, severe,	13					
2. With contusion and partial fracture of long bones, or of the bones of the pelvis in their relation to the lower extremities, ...	28	8	4	10	. .	6
4. With compound fracture of femur, . .	8	. .	2	5	1	
,, ,, tibia only, . .	6	. .	1	5		
,, ,, fibula only, . .	4	3	. .	1		
,, ,, tibia and fibula,	2	. .	. .	2		
5. Penetrating, perforating, or lacerating the several structures of the tarsus and metatarsus, ...	13	4	2	5	. .	2
6. Dividing or lacerating the structure of the toes, ...	1	. .	1			
Total, . . .	162	78	16	41	1	26
10. Gunshot Wounds with direct penetration or perforation of the larger Joints, with Fracture of Bone, ...	8	. .	. .	5	. .	3
,, ,, without Fracture,	1	. .	. .	1		
Total, . . .	9	. .	. .	6	. .	3
11. Gunshot Wounds with direct Injury of large Nerves, not being at the same time Cases of Compound Fracture, ...	6	. .	. .	3	. .	3
12. Sword and Lance Wounds, ...	12	5	1	6		
13. Bayonet Wounds, ...	2	1	. .	. .	. .	1
14. Miscellaneous Wounds and Injuries received in Action, ...	9	2	1	3	. .	3
Total Wounds and Injuries received in Action,	442	190	44	139	5	64

RETURN *of Capital Operations.*

Description of Operation.	Landed at Gravesend.	Discharged to Duty.	Discharged to Modified Duty.	Invalided.	Died.	Remaining undisposed.
AMPUTATIONS.						
Upper extremities.						
Shoulder-joint,	6	. .	. .	6		
Arm,	46	. .	3	40	1	2
Forearm,	19	. .	1	17	. .	1
Thumbs,	12	1	5	5	. .	1
Fingers,	41	1	12	26	. .	2
Lower Extremities.						
Thigh, at upper third,	1	. .	. .	1		
,, middle third,	10	. .	. .	8	1	1
Leg,	18	. .	. .	17	. .	1
Ankle-joint,	1	. .	. .	1		
Medio-tarsus,	2	. .	. .	2		
Toes,	2	1	. .	. .	. .	1
Total,	158	3	21	123	2	9
EXCISIONS.						
Upper Extremities.						
Shoulder-joint,	1	. .	1			
Elbow-joint.	2	. .	2			
Total,	3	. .	3			
LIGATURE OF ARTERIES, INCLUDED UNDER OTHER HEADS.						
Brachial,	1					
Radial,	1					
Post Tibial,	1					
Total,	3					
Total Amputations and Excisions,	161	3	23	124	2	9
Total Wounds and Injuries received in Action,	442	190	44	139	5	64
Total Wounded landed at Gravesend,	603	193	67	263	7	73

This is probably nearly the total number that will arrive from the Mutiny in India; only a very few more can now be expected.

CLASS I.—GUNSHOT WOUNDS OF THE HEAD.

DIVISION 1.—*Contusions and simple Flesh Wounds of the Scalp.*

2 were admitted, and were sent to duty.

Division 2.— *With Contusion or Fracture of the Cranium, without Depression.*

5 were admitted, of whom 3 were sent to duty, and 2 invalided for other diseases. In all of them, small portions of the external tables of the skull came away, necrosed. The scalp was not adherent to the bone in any of them.

The brain and meninges appear readily to support loss of bone by caries and necrosis, and to accommodate themselves to a denudation of osseous covering, which takes place gradually; whilst forcible removal by gunshot injury and operation is more generally resented.

The following cases are good examples of this tolerance of loss of bone caused by necrosis.

No. 2895. Three portions of necrosed parietal bone; the sequestra embrace the entire thickness of the bone. The number of square inches of bone removed is about $5\frac{1}{2}$ inches; they were taken from the superior and posterior angles of both parietal bones. See Plate VI., fig. 1.

From Thomas Walker, 95th Regiment. This is an example of extensive contusion from gunshot wound of the vertex, followed by necrosis, and ultimate recovery, without the use of the trephine at any stage during the treatment.

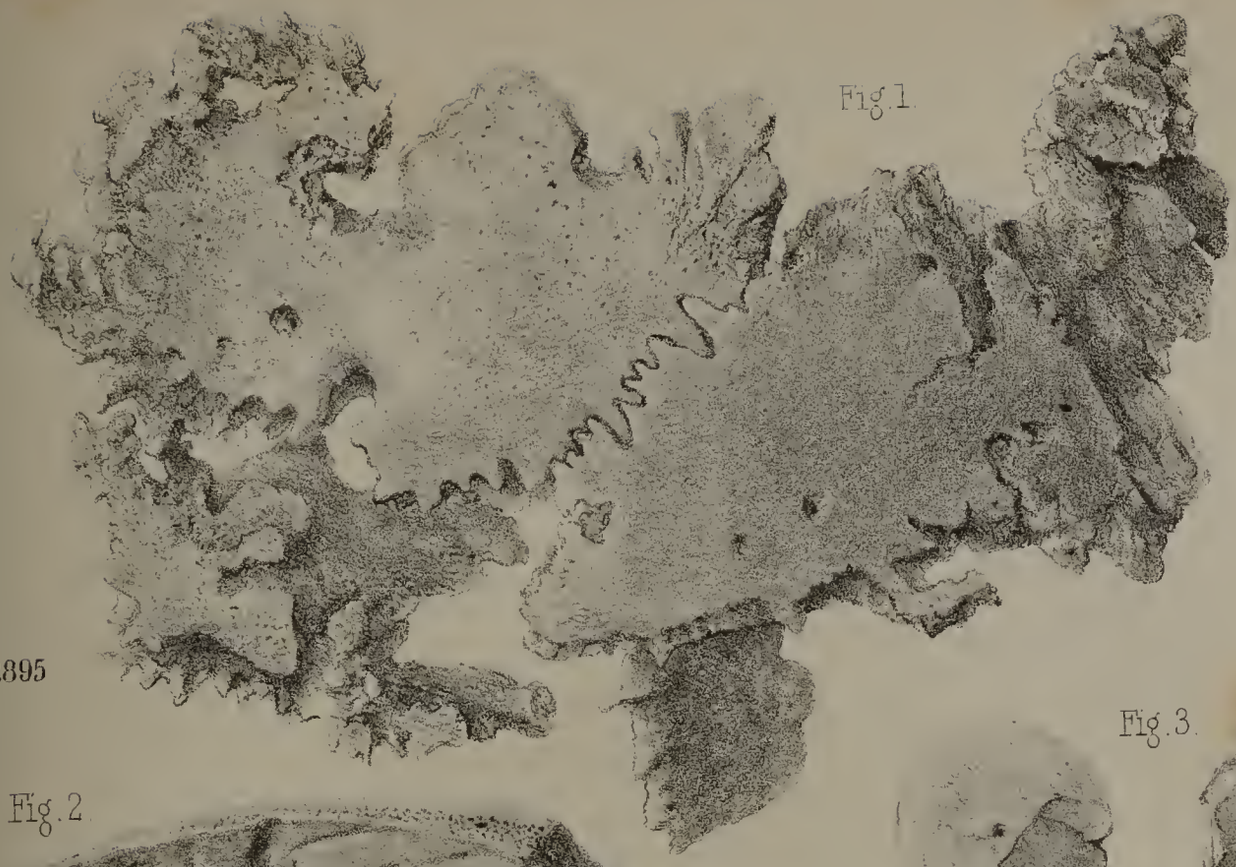
The following preparation from Private G. Bookland, 23rd Regiment, is a case of contusion from a portion of shell without any external wound. Eight months after the injury he was insensible for twenty-one days, but gradually recovered consciousness. The trephine was, however, ultimately applied over the vertex, and the outer table, with portions of the internal table, were removed, and a large quantity of matter was evacuated. The patient recovered.

No. 2896. A large sequestrum, about six inches in diameter, composed almost entirely of the external table of both parietal bones. There are only two small portions, which include both tables. There is an opening in the bone made by the trephine for the evacuation of matter.

No. 3626. Necrosed portions of the bones of the cranium, about two inches in length, and one and a half in breath, consisting of the whole thickness of the skull; the lambdoidal suture runs through its centre. The piece is composed of part of the occipital and part of the parietal bones. There are also two smaller portions: one of them is of the whole thickness, and the other of the outer table only. From M'Gifford; an Indian case.

No. 2910. This cranium shows large irregular depressions and various degrees of deficiency of its parietes, in some places

Fig.1.

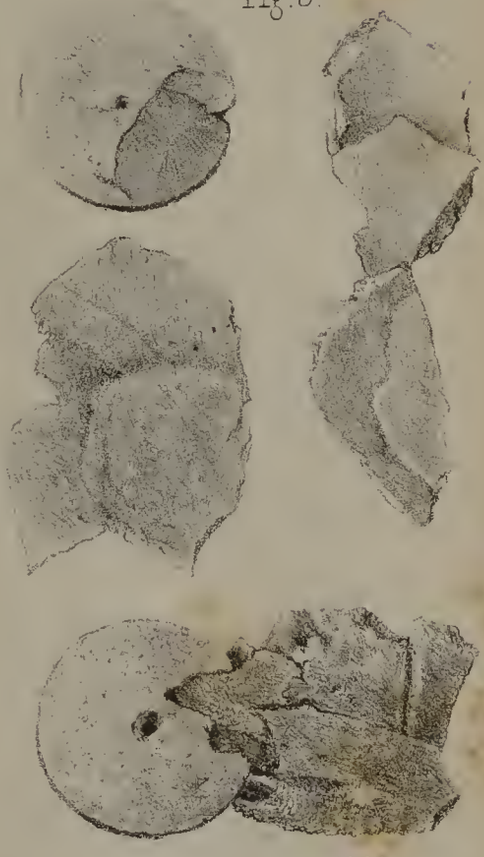


2895

Fig.2.

2885

Fig.3.



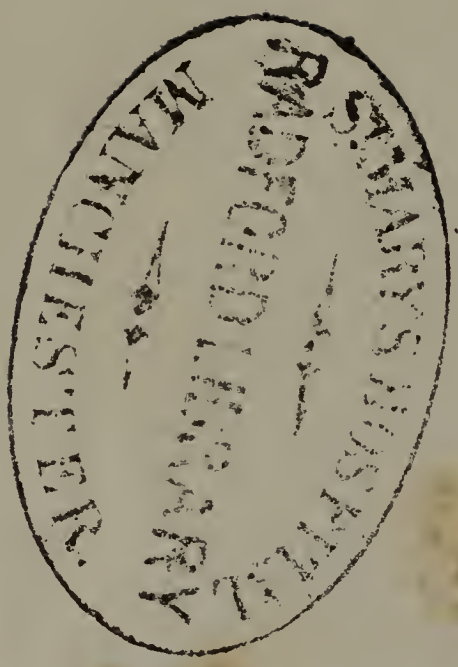
2905

Fig.4.

2894

G.H.Ford.

W.West imp.



comprehending both tables, and in others the external only, and chiefly affecting the left side. The exposed surface of the inner table is quite smooth and compact, as well as the margins of the depressions.

This was the effect of various exfoliations succeeding to a sabre wound of the left parietal bone. The patient was an African negro, a maniac, with occasional violent paroxysms. Disease of four years' duration.

I may also mention the following case, although it was not the result of gunshot wound[a]:—

No. 3176. A cast in wax exhibiting a greater extent of disease affecting the bones of the cranium than perhaps any other case on record, without in any way producing injury to the general health or cerebral functions. The greater portion of the vault of the skull has been removed, and there does not appear to have been the least reproduction of new bone; still, the brain in this case, when last examined by me, was, to a great extent, protected by the effusion of fibrinous matter and consolidation of parts, so as at some places to prevent the pulsation of the brain from being felt,—as has been more fully insisted upon under Division 3.

The disease, necrosis and caries, commenced in T. Blackman, a sailor, in 1845, the result of a fall on board ship. He is now, 1859, in robust health, suffering but little inconvenience from the extent of disease. He is at present an orderly in the Melville Hospital, Chatham[b].

Fracture of the inner or vitreous table of the skull, without fracture or depression of the outer, is of very rare occurrence; still, such an accident may take place, as the following case shows[c]:—

This case proved fatal from compression of the cerebral substance. The question arises,—would this compression have been relieved by the operation of trephining. I believe not, and for the following reasons: first, that the compressing medium was not a fluid which might have escaped through an aperture in the cranium, but coagulated blood; and, secondly, to have operated, and punctured the dura mater when this membrane was in a state of inflammation, would have greatly

[a] This case has been described by Dr. Drummond, D. I. G.

[b] Every case here recorded is the result of a gunshot wound, except when stated to the contrary. The descriptions of the preparations are in general alone given, with a short notice of the result of the case: reference can be made, when required, for further details to the Museum Catalogue.

[c] See the remarks on this subject in Mr. Guthrie's Commentaries, paragraph 262, Lecture xviii.; and Larrey's Military Surgery, p. 326, last edition, 1829.

increased the chances of a fatal issue. The case is interesting, as showing an injury of the internal table of the skull, unconnected with any lesion of the external, and produced by a ball whose conical shape and sharp apex would have led one to expect quite the opposite injury, viz., fracture of the external table and uninjured internal.

May we not also suspect that other cases of this description of fracture have occurred, and have not been observed on post-mortem examination, as took place in this instance, the fissure not being remarked until the calvarium was macerated.

No. 2893.—Calvarium showing a distinct fissure, limited to the internal table, running parallel to the course which the ball had taken, with commencing necrosis. Death in thirteen days after the receipt of the wound.—*Donor, Mr. Cowan, Assistant Surgeon, 55th Regiment.*

Private James Burke, 55th Regiment, aged 19, walked home from the trenches, and was admitted into hospital Aug. 24, 1855. He said that when at the rear a musket-ball, which he found afterwards, struck him on the head. On examination a distinct linear slit, about three inches long, and running parallel with the axis of the brain, was observed situated over the upper surface of the right parietal bone. On introducing the finger, the bone was found quite bare, but no fracture or depression could be discovered.

There were no general symptoms of any serious injury of the head. The head was ordered to be shaved, and cold water dressing applied.

August 29th. Had been progressing favourably until this evening, when the whole scalp was observed to be swollen, but not at all reddened. The œdema was greatest on the right side of the head and face. The edges of the wound looked unhealthy and green, and there was a peculiar smell from the wound; he complained of a want of power in his left arm; the muscles of the face were slightly twisted towards the right side; he could move his legs freely; a crucial incision was made through the wound, the flaps retracted, and the bone carefully examined.

No injury of its intimate structure could be detected, but a distinct black line marked the course of the ball; the pulse was small and weak; numerous free incisions were made here and there over the swollen scalp; from these wounds a great deal of serum escaped.

August 30th. Symptoms of hemiplegia were more distinct; œdema of the scalp quite gone; wound looks more healthy; the bone appeared dead.

September 5th. Had one slight convulsion this morning; respiration decidedly more hurried; in consultation no operation was deemed advisable; had been put under the influence of mercurials.

September 6th. Was much weaker; respiration decidedly more hurried; has had another convulsion; died comatose in the evening.

Post-mortem Examination, eight hours after death.—Calvarium firmly adherent beneath the seat of this injury. On removing it, a false membrane was observed on the dura mater, corresponding exactly to the parietal protuberance, and measuring about two inches in diameter; vessels of dura mater and pia mater congested; underneath the dura mater, at the spot to which the false membrane was adherent, was a large clot of coagulated blood, of the size of a walnut, distinctly circumscribed, and extending in depth to the roof of the lateral ventricle of the same hemisphere. Portions of this clot were degenerated into a reddish grumous matter, possessing no consistence. The cerebral substance around was softened; the other hemisphere of brain was quite healthy; no effusion in either of the ventricles; the internal aspect of the calvarium *seemed at first quite sound*, but after the bone was macerated, a distinct fissure, limited to the internal table, running parallel to the course of the ball, and about half an inch in length, was perceived; the other organs of the body were healthy.

Division 3.—*With Contusion or Fracture of the Cranium, with Depression or Displacement of both Tables.*

Eight cases of this description of fracture arrived from India, and are good examples of fracture of the cranium, and displacement of both tables, with exposure and probable injury to the dura mater. In all of them there was a depressed and generally an adherent cicatrix, which plainly showed that there had been extensive injury and loss of bone, but in none of the cases, on their examination at Fort Pitt, about twelve months after the receipt of the wound, could the pulsation of the brain be felt, the parts having had time to contract and become consolidated by the effusion of a strong fibrous substance.

The size and extent of the depression in the bone, or certain sensorial symptoms remaining, were sufficient evidence that the contents of the cranium had been exposed. It is well known that the bones of the cranium have very little power of repairing injuries inflicted in their continuity by throwing out new osseous matter, but it does not appear to

have been noticed or insisted on, that nature seems to make up for this, by the gradual contraction and filling up of the loss of substance by the deposition of fibrous matter and the gradual contraction and consolidation of the injured parts, so as to effectually close in and protect the brain. This process is well exemplified in some of the cases of gunshot wounds that have arrived from India.

Besides these cases, Dr. Smith, Assistant Surgeon, 9th Lancers, who served with the army at the siege of Delhi, informed me that Captain R. of the Carbineers, and Captain E. of the 60th Rifles, both now in England, are instances of the reparative process just mentioned.

The dura mater was more or less exposed, and the pulsation of the brain visible in both these officers, but in neither, for some months past, has the pulsation been observable, on account of the effusion of fibrous matter and gradual contraction and consolidation of the perforated parts.

In several instances perfectly loose and displaced pieces of bone appear to have been removed, but in none of the cases is there any evidence or even suspicion of trephining having been performed.

After removing any loose or detached portions of bone, the expectant prophylactic treatment seems to be the one usually followed in the present day, and considered to be the most successful.

Nos. 2884, 2885, 2886, 2894, are good examples of this kind of fracture, showing the appearance of parts some considerable time after the receipt of the wound, as also those cases from India of recovery from this injury without the use of the trephine.

With regard to the mode of dressing in gunshot wounds of the head, a piece of fine wet linen is first applied, which adheres to the wound, and should not be frequently removed. Over this, Stromeyer recommends that a net, made for the purpose, should be placed, so as to retain the dressing, and the cold applications are to be made through the net. Patients labouring under wounds of the head are frequently so restless that the wet lint is quickly tossed off, so that the suggestion of Stromeyer appears to be worthy of being generally adopted.

93rd Regt.—Private Jas. Campbell, aged 19.—Wounded at Lucknow, 16th November, 1857, by a musket-ball, which struck him in the centre of the forehead close to the root of the hair, and caused a compound comminuted fracture of the frontal bone; several pieces of bone have come away.

July 10, 1858. The wound is now healed; there is a depres-

sion at the seat of injury, about the size of a cherry, where all the tables of the skull appear to be removed, although the pulsation of the brain cannot be felt, and he complains of severe pain in the head. The man states that the ball is still in the head, and that the medical officers in India inserted the probe for several inches along the inner surface of the bone, and found the ball, but could not extract it.

Invalided, 9th August, 1858.

64th Regiment.—Private Matthew M'Glasher, aged 39, twenty-two years' service.

Wounded on the 12th of August, 1857, by a portion of shell at the storming of Bassack Gungee in Oude; it struck him on the upper part of the left side of the forehead, at the upper and outer angle of the frontal bone, a portion of which was taken away two days after the wound.

June 11, 1858. There are now two long cicatrices leading down to a deep depression capable of holding a marble, resulting from the loss of apparently all the tables of the skull, although the pulsation of the brain cannot be felt. He is in good health, and free from headach, except when he exposes himself to the sun, or stoops, &c.

September 3, 1858. Was sent to modified duty.

3rd Battn. R. B.—Private Charles Brown. Wounded at Cawnpore, December 6, 1857, by a musket-ball between the eyes into the frontal sinus; it was extracted forty-eight hours after. Several pieces of bone have come away.

July 12th. The wound is now nearly closed, there being only a small aperture capable of admitting a probe in the centre of a small depression; bare bone cannot be felt, and there is almost no discharge from it, and he is free from headach.

September 11, 1858. Duty.

37th Regt.—Private John M'Gifford.—Wounded 30th July, 1857, by a musket-ball in the head; the ball passed across the upper part of the occiput, severely injuring the bone, which was left quite bare; one large piece of necrosed bone, the whole thickness, came away about three months after. Preparation No. 3626.

July 16, 1858. Wound healed; there is now a deep depression, about three inches in length, across the upper part of the occipital bone; also a deep groove leading down from the centre of the first depression in the form of the letter T; always complains of pains in the head and giddiness.

July 17, 1858. Invalided.

34th Regt.—Private Thomas Long. Wounded at Cawnpore, November 26, 1857, on the left temple, by a piece of shell,

which lacerated the scalp and fractured the outer table of the parietal bone; necrosis ensued, and two small pieces of bone have come away.

July 14, 1858. Wound healed; there is a deep depression, about three inches in length, capable of holding a finger, from loss of the outer table and probable depression of the inner; complains of headach.

August 6, 1858. Invalided.

53rd Regt.—Private John O'Donnell. Wounded at Cawnpore, December 6, 1857, by a musket-ball, which struck him on the head a little to the left of the sagittal suture on the upper and back part of the left parietal bone, close to that suture; ball extracted immediately after; exfoliation of bone took place.

July 13, 1858. Wound healed; there is now a deep depression capable of holding a cherry; the whole thickness of the skull seems to have come away, still the pulsation of the brain cannot be felt; complains of pain in the head; remains undisposed of.

78th Regt.—Private John Halliday received a gunshot wound in the head whilst on service in Oude, in July, 1857. The slugs, or pieces of telegraph wire, with which the wound was inflicted, struck the left parietal bone near the temporal ridge, carrying away a large portion of the scalp and bone; other pieces of bone have been extracted since the receipt of the wound, leaving a large irregular opening ahout two inches in diameter, through which the brain may be seen pulsating; mental faculties clear; has shown no symptoms of cerebral excitement; the immediate cause of death was chronic hepatitis and ascites.

Died May 29, 1858, at Gravesend.

Post Mortem.—General appearance of Body.—Abdomen and scrotum distended with fluid; both legs and feet very œdematous; a large cicatrix on the left side of the head, about three inches above and behind the ear. *Head.*—On removing the scalp over the wounded part, a small quantity of bloody pus oozed from around a small portion of necrosed bone near the temporal suture, and an opening in the skull was exposed, about the size of a shilling, having a fibrous covering, which alone separated the brain from a thin cicatrix of scalp. The edges of the opening were cartilaginous, and the bone around was rough and irregular; a considerable portion of the adjoining outer table of the skull was apparently carried away at the time he was wounded.

The following specimen shows the result of a severe contusion and fracture from a round shot, with slight depression

of the internal table, five and a half years after the injury, with actual bony union of displaced fragments, and a depression of the contents of the cranium.

No. 2884. Portion of the left parietal bone, showing the result of a gun-shot fracture. A portion of bone exfoliated, and there is now a depression in the external table, and corresponding to this there is a depressed fragment of the internal table, with smooth edges, which is reunited by new bony matter to the old bone.

80th Regiment.—Private William Freeman, aged 35, received a severe contusion of the head by a gunshot, at Ferozeshah, December 22, 1845. When first under notice, there was no disturbance of the sensorial functions, and no breach of the scalp, but great tumefaction of the parts from ecchymosis; suppuration and exfoliation followed. The patient recovered perfectly, and neither then nor afterwards did he appear to have suffered cerebral symptoms in consequence of the wound. Died June 16, 1851, of dysentery.

On post-mortem examination, there was a slight depression in the cerebral substance and membranes of the brain, opposite to the fracture, which had a darker and more vascular appearance than elsewhere, but there was no thickening or trace of lymph.—*Donor, J. R. Taylor, Surgeon, 80th Regt.*

No. 2885.—From Private D. Mullens, 36th Regiment. Shows a depressed fracture of right parietal bone; it projects to a considerable extent internally, and new bone is thrown out around it. The margins of the fracture are smooth and rounded off, and reunited to the old bone.—*Donor, Dr. Russell, Surgeon, 36th Regt.* This is a good example of a considerable depressed fracture, without a single bad symptom, and complete recovery taking place in the short space of a fortnight, without the use of the trephine. See Plate VI., Fig. 2.

No. 2886.—Skull-cap, exhibiting an old reunited fracture of the frontal bone. The inner table is considerably depressed, without corresponding depression of the outer. From a soldier who was wounded in the head in Spain, several years before his death.

This specimen shows well how much the inner table is broken and depressed, compared to the outer, and the appearance after many years.

The following is one of those obscure cases of injury of the head where, immediately after the receipt of the injury, there is no relation between the symptoms developed and the actual extent of the lesion. There must have been a large extravasation of blood in the left hemisphere, immediately on the receipt

of the wound; and yet the patient was able to walk home, a distance of two miles, and not the slightest symptom of paralysis was discoverable.

No. 2888.—Calvarium showing fracture of the left parietal bone, caused by a shell. The depressed portions of bone were removed, and the dura mater punctured to allow purulent matter to escape.—*Donor, Mr. Cowan, Assistant Surgeon, 55th Regiment.*

55th Regiment.—Private D. O'Leary was wounded by a portion of shell at the assault on the Redan, September 8, 1855. From the fact of there not being the slightest general symptoms of compression, cold dressing was applied, and the case minutely watched.

September 11th. Complained of headach and sickness at the stomach. A crucial incision was at once made through the wound; the portion of bone depressed was found to include both tables; that of the external was fractured, while that of the internal was merely depressed. The opening left was about the size of a shilling; the dura mater at once protruded through the aperture, and was punctured, when a reddish, semi-purulent matter escaped. The patient after the operation stated that he felt no pain, and fell into a deep sleep.

14th. Had a convulsive fit, and an excessive action of the muscles of the face and neck.

15th. Complete paralysis of right side; he was insensible; there was a true hernia cerebri.

16th. Died, comatose.

Calvarium firmly adherent; dura mater discoloured, and softened round the seat of injury; the whole of left hemisphere presented one mass of blood, and disorganized cerebral matter.

The next preparation, from Sergeant Shea, 49th Regiment, shows how a patient may recover so far from a depressed and comminuted fracture of the skull as to be able to go about and to all appearance to be in tolerably good health for fifty-four days after the accident, until suddenly seized with convulsions. It is questionable whether this man would have had a better chance had the trephine been applied, and the depressed bone raised, on the receipt of the injury. Subsequently, when the patient was in such good health, there was every prospect of his ultimate recovery, and a surgeon under these circumstances would have had considerable hesitation in recommending an operation, and most likely the patient could not have seen any necessity for having a hole made in his skull.

No. 2894.—Depressed fracture of the posterior part of the

right parietal bone. A sharp margin of the bone must have pressed to a great extent on the dura mater and brain. See Plate VI., Fig. 3.

Out of 15 cases of this description of fracture that occurred in the Crimea, and are recorded in the Museum Catalogue, 4 were not operated on, and, of these, 3 died of abscess of the brain, and 1 recovered. Of 11 operated upon in consequence of symptoms of compression or inflammation, and to remove balls, 4 recovered, and 7 died. In the 15 cases, none of them had head symptoms for some days after being wounded, and none were operated upon before the fourth day, and 1 as late as the twenty-sixth day, and consequently after inflammatory symptoms had shown themselves.

The following are examples of some of the cases where the trephine or Hey's saw was employed.

No. 2900.—Shows the portion removed by the trephine from Private Leary, 18th Regiment.

In this case the fracture was on the right parietal bone, and paralysis of the left side of the face followed, the result of suppuration in the substance of the right hemisphere and membrane of the brain. Trephined four days after he was wounded, and died seven days after the operation.

The following specimen, from Private Conolly, 1st Battalion Rifles, shows a compound comminuted fracture of the frontal bone in the situation of the frontal sinuses. The internal table is considerably more splintered than the outer, and a portion of the bone appears to have been taken away by Hey's saw, to facilitate the removal of the loose pieces of bone.

No. 2892.—Calvarium, showing fracture and depression of the frontal bone, caused by a shell. The fracture is situated on the left side, immediately above the superciliary ridge. Three small pieces of bone were removed from the wound by operation.

No. 2901.—Portion of fractured bone removed by Hey's saw, from Private John Evans, Royal Artillery, who received three small lacerated wounds of the scalp by the blowing up of a magazine, and lay insensible for some time. The wounds healed, and he walked about, apparently well, until about a month after the receipt of the wound, when he became comatose, and on examining the head there appeared a small tumour which presented the characteristics of Potts' puffy tumour.

The symptoms of compression were relieved by operation, and ultimate recovery took place. This preparation and the two following, also No. 2900, were presented by Dr. Jephson, Surgeon, King's Dragoon Guards.

No. 2905.—Shows several large portions of bone removed by the trephine at two applications of the instrument, from Private D. M'Kenzie, 55th Regiment. See Plate VI., Fig. 4.

In this case the symptoms of inflammation of the brain and its membranes set in, and he was trephined on the fourth day after being wounded. A large piece of bone turned edgewise, pressing down the dura mater nearly an inch, required a second application of the trephine; almost instant relief was obtained, and the patient ultimately recovered, and was discharged to duty six weeks after the receipt of the injury.

The following preparation, from Private C. Hancock, 21st Regiment, is an example of a depressed fracture from grape-shot. Inflammatory symptoms, with excruciating pain in the head, and double vision, came on. The trephine was applied on the fifth day after being wounded. Death took place on the sixteenth day.

2898.—Two very large portions of depressed fracture removed by the operation of trephining; thus illustrating the extensive injury inflicted by grape, and the comminuted fracture which is the result.

There are also other preparations in the Museum illustrating the removal or forcible elevation of depressed bone from Collins, Scribbins, Perry, and Perkins, whose cases are detailed in the second volume of the Medical and Surgical History of the British Army in the Crimea.

Division 4.—*Penetrating and perforating the Cranium and its Contents.*

None were admitted under this head from India.

Unfortunately, men's heads are not what they used to be, or modern missiles are more deadly, for recent wars furnish not one exception to the fatal consequences of this species of wounds. Of 91 cases of penetrating and perforating gunshot wounds of the head, admitted into hospital in the Crimea between the 1st April, 1855, and the end of the war, all, without exception, proved fatal. The details of these cases, had they been given, would, however, have been instructive as showing that what are called symptoms of compression occur equally when a portion of cranium and brain is shot away, and the cerebral substance left without cover and support. Mr. Hennen notes the case of a soldier who had nearly half of the roof of the skull blown off by the bursting of a shell, and who had no untoward symptoms till the tenth day, when the brain got into a fungous state, and protruded to a great extent, and

(Mr. Hennen adds in italics) "*he died comatose, with all the symptoms of compression*"[a].

Leaden balls are generally flattened by striking against the bone; sometimes they are cut in two, one portion of which lodges, and the other flies off (2883) at various angles, according to the obliquity of the projectile force, &c., or it may remain under the scalp at the margin of the aperture, while the other portion enters the cranium (2891).

The following is a good example of a perforating gunshot wound of the skull, and shows extremely well the usual characters of the aperture at the entrance and exit of a musket-ball. The outer margin of the entrance of the ball is seen to be smooth, and its inner surface larger and more irregular, and (in this case only slightly) splintered; the internal table being generally splintered to a greater extent than the outer, which is thought to be owing to its being more brittle. The entrance and exit of the ball in this skull show that it is rather produced by the injury proceeding from without inwards, and also from the force of the ball becoming less in passing through the outer table.

No. 2881.—Skull-cap, exhibiting two perforations made by a pistol-ball in the anterior and right side of the frontal bone, and in the posterior part of the left parietal bone. The ball entered in the former situation, and lodged in the latter. The first opening is round and smooth; the second is regular on the inner table, but the outer is torn up to an extent much larger than the ball, which is lodged in front of the splinters. From an officer who was killed in a duel.

The following specimen shows the result of a gunshot fracture, where the patient survived fifteen weeks after the injury. It is to be presumed that any loose splintered pieces of bone (if any existed) were removed by the surgeon, and in all probability other portions were driven into the brain along with the ball; still, the man lived for some time, and became convalescent, with the ball in the lateral ventricle. The internal surface of the bone shows marks of vascular action, with slight osseous deposit around the opening. Three large wormian bones are seen in the preparation, and the gunshot hole is through two of them.

No. 2882.—Portion of a cranium in which is a circular perforation made by a musket-ball at Waterloo. The external margin of the hole is sharp, but the internal is rounded off, and of somewhat larger diameter than the former. The ball lodged

[a] Hennen's Military Surgery, p. 353. Last Edition, 1829.

in the brain. The man, however, became convalescent, until he was attacked with apoplexy fifteen weeks after the wound, and died. The ball was found loose in the lateral ventricles, having shifted its original position.

The next preparation, from Private William Doyle, 19th Regiment, is very interesting, and shows:—1st. That a ball may be cut in two by striking the margin of the fractured bone, and in such a manner as to leave a smooth surface on the ball, as if it had been cut by a sharp instrument, and one portion of bullet to enter the cranium, causing fracture, depression, and splintering of the internal table. 2nd. That in all probability the depressed portion sprung up or was forced up by the motion and resistance caused by the brain. 3rd. That a bullet may enter the cranium without leaving an aperture in the skull, but merely a slight depression and fissure, and leaving no evidence of its having entered the skull during life, until found on post-mortem examination. 4th. That the internal table is more splintered than the external. 5th. That the trephine may be applied without the surgeon being able to take away splintered portions, or to find the ball; in this case, however, there was no evidence of a ball having penetrated. 6th. It also records a wound in the superior longitudinal sinus, with extravasation of blood on the brain. It also shows that the want of an apparently sufficient opening does not prove that the ball has not penetrated and lodged, as the elasticity of bone is such as to diminish the aperture to a considerable extent. The patient survived the wound five or six hours only.

No. 2883.—Lodgment of part of a rifle-ball in the brain, without the usual evidence of a hole in the cranium. Portion of cranium with a depressed fracture by musket-ball. Portion removed by trephine. Portion of rifle-ball found in cerebrum.—*Donor, T. Longmore, Surgeon, 19th Regiment.*

No. 2889.—Calvarium, showing the great extent of injury inflicted on the osseous substance by a conical musket-ball, which perforated the cranium. Not only are both openings joined by a well-defined fissure, but there are cracks radiating in all directions from both wounds.—*Donor, Mr. Cowan, Assistant Surgeon, 55th Regiment.*

This is from Private R. Davis, 55th Regiment. It is curious that portions of the bone large enough to allow of the easy introduction of the finger were removed, which had been driven before the ball and escaped with it through the aperture of exit; only a few loose spiculæ were found in the substance of the brain itself.

The ball in the case of Private Thomas Cain, Rifles, was split, and penetrated the dura mater and brain to the extent of an inch, and was extracted twenty-four days after the wound was received, and the depressed bone was elevated on the twenty-sixth day. There was an extensive abscess in the right lobe of the brain, and pus on the surface and in the ventricles, with fungus preventing the escape of the matter.

No. 2902.—Shows the portions of bone removed by the trephine, and also the musket-ball, split.

The following is a gunshot wound of the face and base of the skull; death ten days after the injury, from hemorrhage from the internal carotid, splinters of bone in the left hemisphere, and suppuration.

No. 2880.—Cranium, exhibiting the track of a musket-ball, from the lower and inner side of the right orbit to the carotid canal, in the petrous portion of the left temporal bone. The internal carotid artery was ruptured, and the ball lay near the opening; spiculæ of bone were entangled in the substance of the left hemisphere of the brain, and suppuration had commenced in this part.

No. 3197.—Cast of the head of a man who received a gunshot wound in the right anterior lobe of the brain when attempting suicide.

From Private Daniel Tonson, 24th Regiment. This is a good example of a gunshot wound penetrating the substance of the brain, with recovery without any operative measures.

SABRE OR BAYONET WOUNDS.

The cut by a sword or by any clean-cutting instrument occasionally produces a mere solution of continuity, and in some cases it causes a fracture or fissure, which extends further than the part actually cut by the sword.

No. 2909.—Calvarium of an officer of the 98th Regiment, who was killed at Peshawur. There is a large, deep cut through the upper part of the right parietal bone, extending into the left; the blow seems to have been from behind, and a second blow, or cut, seems to have taken away a portion of bone immediately below the other. Death 22 days after the injury.

Wounds of the *orbit* are always very dangerous on account of the close proximity of the brain, and are usually produced by any sharp-pointed weapon, such as a bayonet or sword, by a walking-cane or tobacco-pipe, penetrating the thin superior wall of the orbit, and entering the brain, causing inflammation and abscess. The orbital plate of the frontal bone and the ethmoid are very thin and fragile, and the anterior lobes of the

brain can easily be reached either from the nostrils or orbits, and a wound in either of these situations may even take place without exciting the suspicion of the surgeon that any serious injury has been inflicted, until symptoms of inflammation of the brain set in, more especially as the wound externally may appear of a very trivial character, as occurred in the following case:[a]—

No. 2794.—The bones of the face, and a portion of the cranium, with the broken extremity of a cane which had penetrated into the nostril at the left ala of the nose, and entered the inside of the skull immediately below the left optic nerve, carrying before it the left posterior clinoid process.—*Donor, Dr. Anderson, Surgeon, 12th Royal Lancers.*

Trumpeter E. Grainger, 12th Lancers; death two days after the accident.

Class II.—Wounds of the Face.

Division 1.—*Simple Flesh Contusions and Wounds*

Only one was admitted, and was invalided for diarrhœa.

Division 2.—*Penetrating, perforating, or lacerating the Bony Structure, without lesion of important organs.*

Three cases were admitted from India, and were discharged to duty. One was a case of partial fracture of the lower jaw; two of the upper jaw, in one of which the ball made its exit through the palate into the mouth seven weeks after.[a]

No. 2955. Cast of the breech and screw of a fowling-piece which lodged in the forehead and nasal cavities. From an officer, who lived seven years after the accident. The anterior portion of the right hemisphere of the brain rested on the flat part of the breech, and was separated only from it by a false membrane.

Division 3.—*Penetrating, perforating, or lacerating the Bony Structure, with lesion of the Eye.*

12 were admitted from India with lesion of the eye, of which 3 were sent to duty and 7 invalided; 1 was a case of total loss of vision of both eyes; 8 had lost the right eye; and 3 the left; 7 were supplied with artificial eyes. The 3 sent to duty had lost the right eye, and had artificial eyes supplied to them. The injury to the eyes was caused by musket-ball

[a] For a full account of this case, with an illustration, see Dublin Quarterly Journal, vol. xi., p. 347.

in 8 instances, in 2 by a piece of shell, and in 2 by small shot. The musket-ball generally entered the temples, passed in a slanting direction, and made its exit through the eye.

The men supplied with artificial eyes were very much improved in appearance; and the different shades of colours of the iris and sclerotic were so well matched that it was almost impossible to tell the natural from the artificial one : so much was this the case, that the officers, on going down the ranks, were puzzled to know the one from the other; one man, in a drunken spree, had his eye broken to pieces, fortunately for him, without any injury from the broken portions of the artificial eye.

84th Regt.—Private Francis Lyons[a], wounded September 25, 1857, by a musket-ball, which entered the left temple in front of the ear, and passed out through the eye; two pieces of bone were taken away, two hours after, from the aperture of entrance of the ball.

January 11th. The sight of the eye is now entirely destroyed; the eyelid remains entire; there is a hollow in the left temple from the loss of bone and muscle; the wounds are healed; complains of pain in the head. Remains undisposed of.

93rd Regt.—Private Christopher Porter[a], wounded November 16, 1857, at Lucknow, by a small rifle-ball, which entered the left orbit at the side of the nose, and passed across the right orbit, and out about the centre of the right zygoma, destroying the sight of both eyes. The scar of entrance of the ball cannot be detected, but that of exit is evident; there was considerable hemorrhage from the wound.

June 11th. The globes of the eyes are collapsed, and the humours escaped; he has frequently very severe pain in the head, and cannot stand exposure to the sun, or excitement of any kind.

June 24th. Invalided.

64th Regt.—Private Michael Kirwan, wounded August 5, 1857, in Oude, with General Havelock's force, by a piece of shell which struck him on the right side of the head, producing total loss of vision of right eye. The eyeball is collapsed, but the lids remain; the left appears as if threatened with amaurosis from nervous influence, owing to the injury of the right eye; during the slightest exercise or exposure to the sun, he suffers from giddiness and dimness of vision, which compels him to remain quiet. Remains undisposed of.

[a] The cases of Lyons and Porter are mentioned by Assistant-Surgeon Chaumont, 1st Battalion of Rifles, in the Edinburgh Monthly Journal for December, 1858.

90th Regt.—Thomas Gallagher, wounded at Lucknow, November 16, 1857, by a musket-ball, which entered in front of the right ear, and passed out under the eye of the same side, close to the nose. One piece of bone came away from the entrance of the ball.

July 13th. Wound healed; cannot open his mouth to any extent, and has lost the sight of the right eye; the pupil of left is very much dilated, and the eye has an amaurotic appearance, but the ball of the eye is uninjured.

Invalided August 5th.

60th Regt.—Corporal John Jackson, wounded at Delhi, August 2, 1857, by a musket-ball in right eye, which took an unascertained course; there was not much loss of blood, and he was for about five weeks in nearly an unconscious state.

July 20th. Has lost the use of right eye, the humours having escaped; lids not much injured; has occasional headach, and has lost the sense of smell; is otherwise in good health. Was supplied with a glass eye.

July 21st, 1858. Duty.

Division 4.— *With Fracture of the Lower Jaw.*

It is worthy of remark, the frequency of ununited fracture of the lower jaw in these cases of gunshot injury.

This bone is well supplied with blood, so that necrosis to any great extent does not generally follow severe comminution; still, callus is not thrown out so copiously for the repair of fracture as in the long bones of the extremities. Ununited fracture of the lower jaw does not seem to have been of such frequent occurrence amongst the wounded from the Crimea as those from India.

6 were admitted from India with fracture of the lower jaw. Of these, 3 were invalided; two sent to duty, and one to modified duty. Of these 6 cases, three were instances where the fracture still remained ununited, although the fractured ends of the bone were in contact. In one case the ball struck one side of the lower jaw, and was cut out on the opposite side, one month after, fracturing the bone on both sides. In one the ball was cut out from below the tongue. In one case, from a shell wound, there was a double fracture; one on the right side of ramus, and also another, near the symphysis, with great laceration of soft parts and deformity resulting; the first-named fracture remained ununited. In another case there was a double fracture from a musket-ball; the fracture at the entrance of the ball still remains ununited; that at exit has become united. In one case, from round-shot,

the whole of the left ramus of the lower jaw had been extracted at the time, or came away by exfoliation, leaving a large chasm and great deformity on this side of the cheek from laceration of the soft parts. In one case there was a fracture on the left side at the angle of the jaw still ununited.

Attempts were made to excite action in the ends of the bone by forcible rubbing together, and afterwards keeping the two fractured ends at rest by wire round the teeth, and a piece of cork placed between the teeth of the posterior fragment and that of the upper jaw, but without success. It was not thought advisable to try the effects of a seton or other means of inducing the effusion of new bone.

93rd Regt.—Private William Jeffreyes, wounded at Cawnpore, December 1, 1857, by a piece of shell on the right side of the body of the lower jaw. The soft parts were much torn, and the lower edge of the body of the bone was broken to pieces. There was also a vertical fracture of the bone near the symphysis.

July 12th. The first-named fracture is still ununited, and quite movable, and there is a large scar on the chin, opposite to it. There does not appear to be any necrosed pieces of bone coming away; the second fracture has united.

Invalided August 15, 1858.

8th Regt.—Private Edward Sweeny, aged 26, wounded at Delhi, September 14, 1857, by a musket-ball, which entered at the left side of the face, fracturing the lower jaw opposite to the first molar tooth, and passed across to a corresponding part on the opposite side of the lower jaw, where it made its exit. The portion of the symphysis of the lower jaw in front was for about three months quite loose and detached; several pieces of bone came away from the fracture on the left side; none came away from that on the right side, which became united in about three months after.

August 2nd. The fracture on the left side of the lower jaw still remains ununited, and quite movable, but there is no discharge from it; he cannot open his mouth, and his chin is distorted.

August 16th. Invalided.

20th Regt.—Enoch Pinder, aged 22, wounded at Sultanpore, February 23, 1858, by a round-shot on the left side of the lower jaw, fracturing this bone; nearly the whole of the left ramus of the lower jaw had been extracted at the time, or came away by exfoliation; the left shoulder-joint was also wounded by the firelock.

September 26th. Wound still discharging from a small

sinus, and there is a large cicatrix on this side of the face, which shows a deep hollow from the loss of bone. A dentist has made an artificial appliance, with several teeth attached, which fills up the deficient space in the left side of the jaw, and the patient feels considerable advantage from it.

November 3rd. Invalided.

23rd Regt.—Private James Morgan, wounded at Lucknow, March 16, 1858, by a musket-ball, which fractured the left ramus of the lower jaw at its angle; where the ball was extracted, several large pieces of bone have come away.

September 26th. Wounds healed; fracture still ununited.

September 27th. Duty.

Class III.—Gunshot Wounds of the Neck.

Division 1.—*Simple Flesh Wounds and Contusions.*

7 cases were admitted, and 6 were discharged to duty. In one the ball entered close to the thyroid cartilage on the left side, and still remains in, but its position could not be ascertained with certainty. One was a flesh wound on the right of the larynx; ball dropped out. In another case the ball entered external to the right sterno-mastoid, and passed out at the margin of the trapezius, without injuring an important vessel or nerve.

It is remarkable that the large arteries and veins in the neck should escape injury so frequently in gunshot wounds, This may, in some measure, be accounted for by the structures in this region being so loose and movable that they yield or recede befere any projectile.

78th Regt.—Private Benjamin Ritchie, wounded at Lucknow, September 25, 1857, by a musket-ball, in the left side of the neck, close to the thyroid cartilage; the ball still remains in, but its position cannot be ascertained with certainty. He spat up blood for some time after.

June 11th. He cannot move his head except to a small extent laterally, and keeps his head bent down upon the chest In consequence of this constrained position, the spinous processes of the fifth and sixth cervical vertebræ project.

June 17th. At Fort Pitt, under the supposition that the ball might possibly be lying embedded in this process, an incision was made downwards to the spinous processes, but no metallic substance could be detected.

August 30, 1858. Duty.

Class IV.—Gunshot Wounds of the Chest.

Division 1.—*Simple Flesh Contusions and Wounds.*

5 were admitted, and discharged to duty.

Division 2.—*With Injury of bony or cartilaginous Parietes, without Lesion of Contents.*

3 were admitted: one was a case of wound by a musket-ball, which struck the ribs on the right side, five inches below the nipple, and passed out a little to the posterior of the entrance. He spat up blood at the time, and frequently afterwards; several pieces of necrosed bone came away from both wounds. He was sent to duty.

The second was a case of wound by a musket-ball in the left breast, injuring the rib; several pieces of bone came away. He was invalided in consequence of impaired breathing.

Division 3.—*With Lesion of Contents by Contusion, or with Non-penetrating Wound.*

Two were admitted: one man was wounded by a round shot in the right breast which fractured the three upper ribs; no external wound. Both were sent to duty.

Division 4.—*Penetrating, and Ball lodged or apparently lodged.*

None admitted.

Division 5.—*Perforating Contents.*

Nine perforating gunshot wounds of the chest arrived from India, of which 5 have been sent to duty; 1 to modified duty; 1 invalided; and 2 died. 7 were wounded on the right side of the chest, and 2 on the left; in 4 instances it is mentioned that air passed out of the wounds of the chest. 8 were wounded by musket-ball, and 1 by grape-shot.

In all these cases there can be little doubt of the lung having been wounded, with, perhaps, the exception of Knox and Farrell. It is also remarkable that so many as five had so far perfectly recovered as to be able to return to duty, and the lung to have been so completely restored that nothing abnormal could be detected, either by percussion or auscultation, along the course of the ball, although it is to be supposed inflammation of the lung and pleural cavity took place to a greater or less extent in all. It is, however, stated that pneumonia occurred only in four instances; in one case there was hernia of the lung.

Out of 106 cases of this description of wound that occurred in the Crimea from the 1st April, 1855, to the end of the war, 82 died, and 24 were invalided or transferred, but it is not stated how many returned to duty. There are, however, the cases of one officer and one soldier detailed of recovery from this injury, and where the lung had perfectly regained its normal functions, one (the officer) returned to duty.

The wounds in all these cases from India were healed, with the exception of three, viz., in that of Doyle, Knox, and Moore. The case of Greenfield is interesting as showing not only a wound of the lung, but also of the œsophagus, recovering and returning to duty.

The two cases which terminated fatally, viz., Doyle and Knox, particularly that of Doyle, is interesting, as furnishing an admirable illustration of a perforating gunshot wound through the lung, the track of the ball still remaining open and fistulous, and being lined by a distinct, firm, false membrane, having numerous bronchial tubes of moderate size entering it; it also shows gangrene taking place in the healthy lung, and the wounded one remaining almost perfectly free from disease.

It is stated in the Report on the Wounded from the Crimea, vol. ii., page 321:—"Occasionally small circumscribed collections of pus took place in the track of the ball, surrounded and cut off from the remainder of the lung by consolidated pulmonary tissue, but in no case did the wounds of the organs remain a fistulous passage."

Private Walter Knox died at Gravesend of phthisis, and an extensive abscess was found extending from the wound near the right nipple to the crest of the ilium, with protrusion of the fractured ends of the ribs. The medical officer who made the post-mortem examination states that there was no communication between the cavity of the thorax and the wound; and that there was no cicatrix nor trace of injury to the lung in the position of the wound. But it appears that as the fractured ends of the ribs and the points of the false ribs protruded from the wound, the pleura and lung itself could hardly have escaped injury. This case might, perhaps, have been more properly placed under Division 3, but, on account of the probable lesion of the lung by the fractured ribs, and also from the difficulty of tracing the course of the ball, the lung being studded with tubercles, &c., it was thought better to be classed under Division 5.

It is a point well worthy of remark, that although from the position of the apertures of entrance and exit of the old round ball, it often appears as if it must have gone through the centre

of the lung, still it will be found that the lung is only wounded superficially, or not through the thickest part, as is seen in the case of Doyle. This seems to be produced by the direction of the ball being deflected by striking the ribs, and then making its exit directly opposite. If a knife or piece of wire were put from one aperture to another, it would, in this case, pass directly through the thickest part of the lung. Preparations Nos. 3637, 3638, 3639, are from Private Owen Doyle.

A ball in passing through the substance of the lung destroys the life of the part, which suppurates, and either gradually heals, leaving a depressed cicatrix, usually, although not always, attached to the walls of the chest. During life, in many cases, it interferes so little with the respiratory murmur as not to be noticed by auscultation, as was very clearly observed in several of the cases from India. On other occasions the wound does not heal, nor the track of the ball close up, but remains open and fistulous, and becomes lined by a distinct membrane, as can be seen in preparation No. 3638.

34th Regt.—Private George Bateman, aged 23, wounded at Cawnpore, November 30, 1857, by a musket-ball, which entered between the seventh and eighth ribs, immediately beneath the right axilla, passed inwards, downwards, and backwards, and made its exit between the eighth and ninth ribs posteriorly, about two inches from the spine. On admission he complained of great pain in the direction of the wound; there was considerable dyspnœa and cough, with bloody expectoration. On the 30th he had an attack of pneumonia.

December 17th. Was free from any bad symptoms.

July 13th. Wounds healed, percussion clear, and respiratory murmur distinct and clear all over the right side of the chest.

July 14, 1858. Duty.

93rd Regt.—David M'Kay, aged 25, wounded at Lucknow, November 16, 1857, by a musket-ball penetrating the right side of chest, emerging at the centre of the back, about an inch above the level of the lower angle of the scapula. During the progress of the case a piece of the spinous process came away; and during a full inspiration air came through the posterior wound with a loud report.

July 14th. Wound healed; respiration audible; pain in right side when lying down, otherwise quite well.

July, 1858. Duty.

60th Regt.—Private John Peake, aged 23, wounded at Delhi, September 14, 1857, by a musket-ball, which penetrated the body on the right side, about an inch from and in a line with the ensiform cartilage, wounding the organs within, and

passing with slight obliquity downwards to the left side, to the ninth and tenth ribs, where it issued, and a piece of lung protruded; the wounds did not heal for five months; had vomiting of blood after the accident, and was insensible.

July 20, 1858. Wounds healed, and feels quite well; at the exit of ball there is a small nipple-like swelling protruding between the ribs, probably a portion of consolidated lung.

July 22nd. Invalided.

75th Regt.—Private Charles Greenfield, aged 25, wounded at Delhi, June 15, 1857, by a grape-shot, weight four ounces, on the left side of the chest. The ball entered through the anterior fold of the axilla, and passed downwards, backwards, and inwards, in a slanting direction, through the left lung, and made its exit apparently between the ninth and tenth ribs, close to the spinous process of the tenth vertebra. The entrance aperture soon healed; that of exit did not heal for seven months, and for six or seven days portions of his food passed through it, and air from the lung.

April 12, 1858. The external wounds have healed, but he suffers much from pain in the side, with a little cough, and much purulent expectoration. On examination there is dulness on percussion, and occasionally moist râles, but these have existed for some time, and are gradually diminishing. The pain is evidently muscular, and has been treated as such with relief.

27th. On examining his lung there is still at the spot above noticed the same dulness on percussion, with harsh respiration and increase of the vocal resonance. He is free from cough, and the position of the physical signs just mentioned corresponds with the course of the shot through his lung; their disappearance cannot for the present be looked for.

30th. Had an attack of pneumonia of the lower lobe of the left lung, with cough, and rust-coloured sputa.

June 1st. He vomited from the effects of antimony which he was taking. This is worthy of notice, on account of the œsophagus having been wounded.

2nd. A few moist râles could be heard.

5th. Quite well.

July 20th. Wounds healed; complains of some difficulty of breathing.

August 26, 1858. Modified duty.

Private Owen Doyle, aged 24; total service, $4\frac{5}{12}$ years, of which he was four months in Malta, one year in the Crimea, and the remainder in India. Wounded at Cawnpore, November 26, 1857, by a musket-ball, which entered the right side of the chest four inches to the outer side of right nipple, between the

sixth and seventh ribs, about two inches under the right axilla, and passed inwards and backwards between the tenth and eleventh ribs posteriorly, where it lodged under the skin and muscles about two inches from the spinous processes of the vertebræ, where it was cut down upon and removed. The ball, on entering the chest, fractured the seventh rib, and on making its exit fractured the tenth rib. The usual symptoms attendant upon wounds of the lungs presented themselves. The man stated that air passed out of both wounds, and he spat up blood for a long time after. Soon after the wound he was attacked with pneumonia of the wounded lung, and for many days he suffered considerably. Ultimately all symptoms of this disease subsided. The wound healed, though he still suffered from cough, dyspnœa, and slight pain in the right side of the chest[a].

August 16, 1858. Admitted into Fort Pitt Hospital from India; wounds healed; complains of cough and shortness of breath. There was nothing abnormal to be detected in the right lung, or along the supposed track of the ball.

18th. Discharged to St. Mary's Barracks, to await invaliding documents.

31st. Readmitted, complaining of pain in the chest generally, but more especially over the left side of the chest, and also slightly over the seat of the old wound; respiration hurried; expectoration abundant and muco-purulent; percussion clear over the right side of the chest; vocal resonance in the inferior lobe of right lung, and along the track of the ball; dulness on percussion in left subclavicular region; respiratory murmur diminished, and crepitation distinctly audible; pulse strong, 86, and respiration 44 in the minute; cough very severe. Was cupped and blistered, and antimonials administered.

September 8th. The exit wound opened, and several small pieces of bone were taken away; complained of great pain, especially in the left side of the chest; pulse 80; respiration 28 per minute; wound discharging freely; healthy pus and air escaped on expiration and on coughing.

9th. Felt very weak, and there was a very fœtid smell from his breath; expectoration very profuse and purulent, and of a disagreeable odour. These symptoms contined up to the 20th, when they began to improve, and he seemed somewhat better, and was able to get out of bed and go about, although still troubled with cough and purulent expectoration, and the discharge from the wound posteriorly had almost ceased.

[a] This case is noticed by Assistant Surgeon Chaumont, Rifles, in the Edinburgh Medical Journal for December, 1858.

27th. Was feverish; pulse high; tongue coated; had a persistent pain in the left subclavicular region, and could not expectorate so freely as before. The fœtor of his breath and sputa returned as bad as ever, and the matter expectorated was of a thick, dark, stringy character. There was dulness on percussion over the whole of the left side of the chest. On the right side of the chest the percussion was clear, with only a few mucous râles, but the patient was in too exhausted a state to be accurately examined.

All these symptoms continued much the same, and he gradually became weaker, and on the 9th October the discharge from the wound still remained very profuse and fœtid, and air escaped very freely from it on coughing. He gradually sank, and died on the 15th October, 1848, eleven months after the wound.

Sectio Cadaveris, twenty hours after death.—*External appearances.* Body stout and well-formed; rigor mortis not passed away; muscles generally firm, and of the usual healthy appearance. There is a cicatrix on the right side of the chest, four inches below and to the outer side of the right nipple, and there is a small depressed aperture on the posterior part of the right side of the chest, about two inches from the spinous processes of the vertebræ, the integument around which is of a livid colour. *Cranium.* About one ounce of fluid at the base of the brain; slight subarachnoid effusion; the veins of pia mater congested; structure was otherwise healthy; weight 3 lbs. 5 oz. *Thorax.* The usual amount of serum in the pericardium; a fibrinous coagulum, not softened, in the right ventricle; the left side of the heart empty; structure of heart healthy; weight 12 oz. The *right lung* adhered firmly and universally to the walls of the chest by adhesions of old standing, more loosely along the anterior margin of the lung than posteriorly; structure of this lung perfectly healthy; crepitant, except a small portion of the inferior lobe close to the track of the ball, which will be more fully described afterwards. The left bronchus having been tied, on introducing the nozzle of a pair of bellows into the trachea, the right lung was found to expand perfectly, and air to rush out externally at the posterior aperture, or that of exit of the ball, showing that there was a free communication between the trachea and the wound in the chest. The aperture of entrance of the ball was marked by a cicatrix four inches below and to the outer side of the right nipple, where it entered the thorax, between the sixth and seventh ribs, and seems to have passed backwards, and made its exit between the tenth and eleventh ribs, and where the ball, as stated in the

Fig. 2.

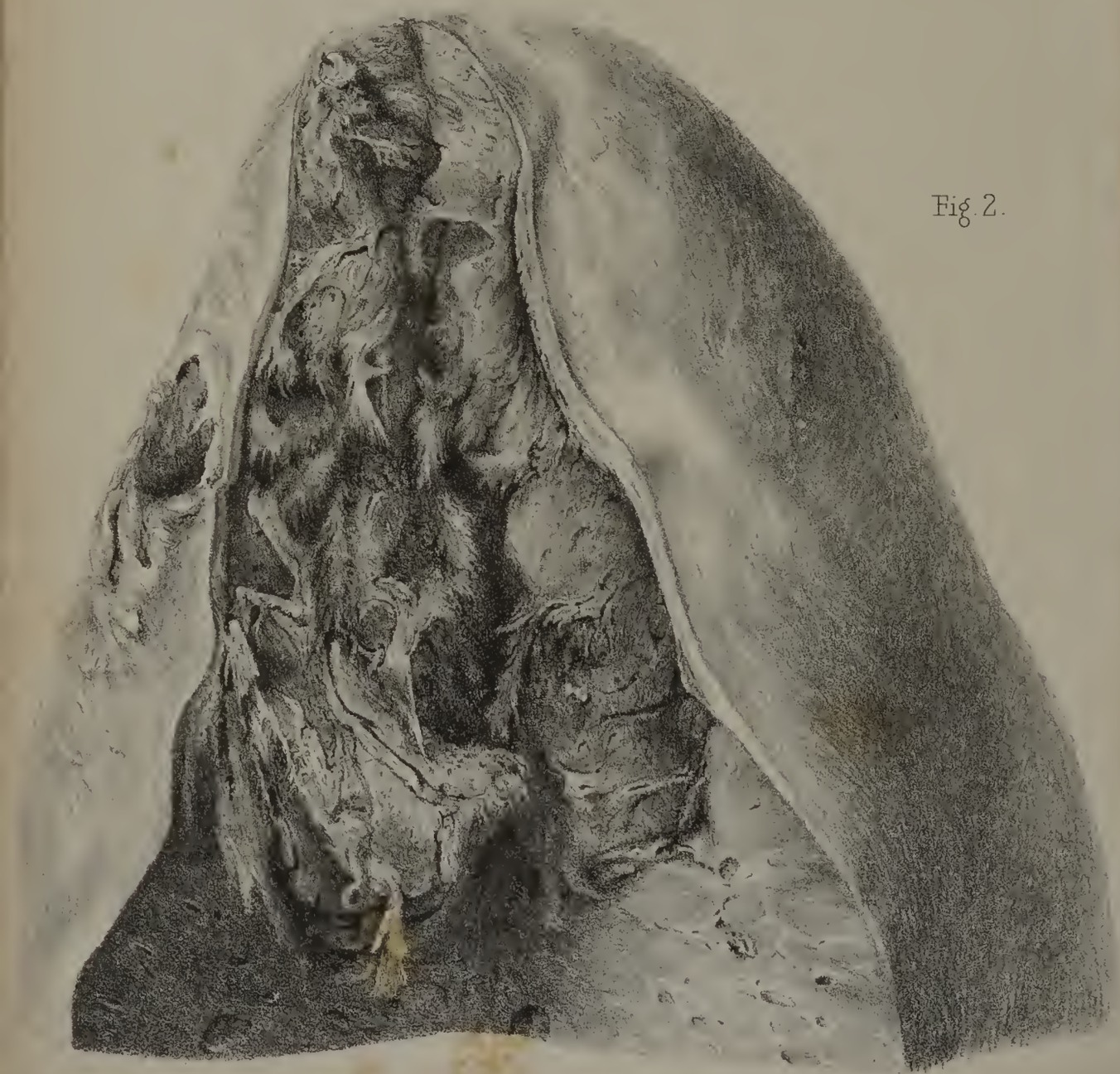


Fig. 1. a. Track of ball. b. Lining membrane. c. Bronchial tubes. d. Unhealed exit of ball.

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report, was cut down upon and removed soon after being wounded. On introducing a probe through the posterior or the exit aperture, it was found to proceed for one inch in the muscular substance external to the thorax, and then to enter the pleura, and to wound the lung superficially. From this a sinus extends for three inches forwards in the substance of the lung to the entrance aperture, now closed. This sinus is larger than a common quill, and is lined by a distinct membrane with bronchial tubes opening into it. The lung seems to have recovered from the previous attacks of inflammation, except along the track of the ball, and where the bone had become necrosed, and kept the posterior wound open and discharging. The fractured ribs are united, and are not much displaced; that at the entrance of the ball projects somewhat inwards, and must have produced considerable irritation to the pleura and lung. See Plate VII., Fig. 2. Numerous pieces of necrosed bone were found in a paper under the patient's pillow after his death, which were supposed to have come from the ribs. The upper half of the *left lung* adhered to the walls of the chest by old adhesions; inferior lobe adhered to the thoracic parietes by lymph of a more recent date, a coating of which fringed it, and covered its lower margin; structure of the upper half of the superior lobe entirely destroyed and broken up, forming a large, irregular cavity, filled with a dark, fœtid fluid, having several of the larger bronchial tubes intersecting it, the whole in a state of gangrene; inferior half of the same lobe in a state of gray hepatization, as also the upper half of inferior lobe, which was condensed, and sank in water. See Plate VII., Fig. 1. The remainder of this lobe was œdematous, but otherwise free from disease. *Abdomen.*—Liver healthy; gall-bladder filled with dark bile; weight of liver, 3 lbs. 8 oz.; spleen healthy; weight, 11 oz.; kidneys healthy; weight of right, 8 oz.; left, 8½ oz.; stomach and intestines healthy; bladder empty and contracted; veins, as far as they could be traced, were found healthy, and the larger veins filled with dark coagula, and at parts fluid blood; but no fibrinous clots softened in their centres, nor pus globules, were detected. All the joints were healthy. This was at first thought to be a case of pyemia, where the pus globules or blood poisoning had excited inflammation in the left lung, resulting in pneumonia and gangrene; but, as stated above, none of the other morbid appearances usually found in cases of pyemia could be discovered.

Our knowledge of all the circumstances connected with, and the pathological appearances resulting from, poisoning of

the blood in cases of open gunshot wounds, is not yet complete, so that this case, on more minute information on the subject, may be classed under the head of death from pyemia, or perhaps it is to be attributed to an accidental attack of pneumonia unconnected with the wound altogether. It is also remarkable that the inflammation should have attacked the sound lung, and not the one already in a state of disease.

In whatever manner the fatal result is to be explained, there can be little doubt that the wound in the chest influenced, in a most serious and baneful manner, the last fatal attack of pneumonia terminating in gangrene of the lung[a].

78th Regt.—Private Walter Knox, wounded at Lucknow, October 29, 1857, by a musket-ball, which struck him on the right side of the chest, near the nipple; the wound sloughed, and some pieces of bone exfoliated, leaving the respiration much impaired. The man stated that he was struck by a portion of shell, and that for three days after receiving the wound he expectorated blood. He was admitted into hospital at Gravesend from the ship "Argo" in the last stage of debility. A large abscess had formed, extending from the nipple to nearly the crest of the ilium, with numerous openings, through some of which the fractured ends of the broken ribs and the points of the false ribs protruded. On the post-mortem examination it was found that there was no cicatrix or trace of injury to the lung in the position of the wound, but that the lower and posterior portions of the right lung were a mass of disease, studded with tubercles in different stages, with several cavities, varying from the size of an acorn downwards. There was no communication between the cavity of the thorax and the wound, nor with the abdomen; but the peritoneum was generally much thickened with adhesions, and that portion corresponding with the seat of the abscess was almost of a cartilaginous texture, and divided by the knife with much difficulty. *Body* reduced to nearly a skeleton; the wound with the sinuses extended from the nipple to the crest of the ilium; the ribs on either side were detached from the lower portion of the sternum, and on the right side the fractured ends and also the points of the false ribs protruded through the skin. *Heart* large; pericardium contained about half an ounce of greenish, straw-coloured fluid; liver healthy; the gall-bladder was loaded with bile; intestines healthy.

14th Light Dragoons.—Private John O'Neill, aged twenty-

[a] It is to be regretted that there is no record of the early treatment in these cases of perforating gun-shot wounds of the thorax, as to whether venesection was prevalent to a great, or only to a moderate extent. Still, I am inclined to think that it was not resorted to. In the case of O'Neill no venesection was employed.

nine years, wounded November 23, 1857, at Mundesand in the Deccan, by a musket-ball in the right side of the chest; the ball entered posteriorly at the inferior angle of the scapula, five inches above the spinous processes of the vertebræ, apparently between the eighth and ninth ribs, and was cut out immediately after from the right nipple. It had broken a rib at its exit. He went some distance on his horse from the field, and bled considerably; at the time his respiration was almost gasping, his countenance anxious, and pulse very feeble. He was almost in a state of collapse, and was thought to be dying. He was kept at perfect rest, his chest bandaged, and opium administered; for some days this treatment was continued; he was fed on barley-water; the pulse became rapid, and breathing painful; tongue dry and brown; thirst always urgent. On the 28th the wound began to discharge healthy pus; he had no cough, nor did he expectorate blood. The skin became cooler, and tongue began to clean, though the pulse continued frequent; the bowels had not been relieved since the wound had been received.

November 30th. 1 oz. of castor-oil relieved the bowels, and he was carried a march in a dooley, and took light puddings, milk, &c. On the 4th December, 3 oz. of port wine; no medicine. On the 9th could sit up for a few minutes to have his wounds dressed; they were both closing. The ends of the fractured ribs could be plainly felt; he was now allowed a little chicken diet On the 15th the wound in the nipple had healed; he had gained strength, although he was very much prostrated. The chest did not act much on the right side during inspiration. On the 20th he could walk a little about the hospital; the posterior wound had nearly closed; there was slight crepitation about the lung near the wound, readily heard by the stethoscope; tongue had become quite clean; appetite good, and pulse natural. The chest was tender on pressure over the track of the ball, and he could not exert himself without a dull pricking pain there. The right side of the chest still acted very imperfectly. On the 5th September the wounds healed; respiration at entrance and exit of ball, and along supposed track through the lung, normal; and percussion clear.

September 8, 1858. Duty.

90th Regt.—Patrick Farrell, aged 24, wounded November 17, 1857, at Lucknow, by a musket-ball in the right side of the chest; the ball entered over the angle of the ninth rib of the right side, and passed out half an inch from the spinous process of last dorsal vertebra; several pieces of bone came away from the aperture of exit; he spat up blood at the time, and also on

several occasions afterwards. On the 10th October the wounds healed. It is difficult to say whether the internal organs were wounded or not, and if so, whether it was the lung or liver; respiratory murmur and percussion on this side normal.

October 15, 1858. Duty.

Private William Moore, aged 37, wounded at Cawnpore, November 28, 1857, by a musket-ball which penetrated the left side of the chest, three inches below and a little to the left of the nipple, and came out at a corresponding point behind where it injured the rib. The man states that wind came out of the wound, and that he spat blood.

July 13th. The anterior wound is healed; the posterior is still discharging, and a piece of diseased bone can be felt.

September 30, 1858. Duty.

Gunshot Wounds of the Diaphragm.

In the Report on the Medical and Surgical History of the British Army in the Crimea, vol. ii., page 317, it is stated that "it occasionally happened that both chest and belly had been wounded." One case is detailed, that of Dolan; and another is mentioned to have occurred in the 4th regiment. The first died on the tenth day, and the other sixteen hours after being wounded; but no case is recorded where a hernia of the abdominal organs had taken place into the pleural cavity. There appears to be a doubt as to whether Corporal Burke, 18th Regiment, was a case of rupture of the diaphragm without an external wound.

In the case of Greenfield, from India, there is every reason to suppose that the diaphragm was wounded on the *left* side, as the wound into the chest was so low that it was difficult to say whether the food passed out from the œsophagus or from the stomach just at its entrance. In Private Falloon's case it is probable that there was a wound of the diaphragm on the right side.

When the diaphragm is wounded, the floating viscera of the abdomen sometimes pass into the pleural cavity, and Mr. Guthrie is of opinion "these wounds never heal, but remain open ever after. When the diaphragm is wounded in the neighbourhood of the liver or spleen, adhesions may take place so as to prevent hernial protrusion."

It is always worthy of note, whether the wound is on the left or the right side, as to the probability of a hernia occurring, this being more liable to take place on the left than the right side.

There are three specimens of this rare and interesting de-

scription of wound in the Museum. In one case the soldier lived twenty-two years after, and did his duty; another lived one year, also in good health; and of the third there is no record.

No. 1260. Diaphragmatic hernia; the greater part of the transverse arch of the colon with the omentum are situated above the diaphragm, and in the left pleural cavity. The opening is in the muscular portion of the diaphragm, and about an inch in diameter.

No. 1268. Displays the whole of the stomach and greater part of the transverse arch of the colon (both rather small) with the omentum situated in the lower and anterior part of the left cavity of the thorax. The anterior surface of the stomach is firmly attached to the lower lobe of the lung; the lung at this side, as may be expected, has become much reduced in size, and occupies the superior and posterior part of its proper cavity. The right lung is smaller than the left, and from the circumstance of the heart being much displaced by the stomach and colon, and instead of extending across from the second rib of the right side to the sixth of the left, as this viscus naturally does, it now lies nearly parallel to the spine, having the apex almost on a level with the coronary ligament of the liver, and, being of a natural size, must have proved much less yielding during inspiration than the stomach and the colon on the other side of the chest.

The opening in the diaphragm extends in a transverse direction near to the centre of the dorsal attachment of the left side of this muscle, and the objects forming the hernia have contracted adhesions with the diaphragm and other parts, and the peritoneum lining the former is in many places continuous with that covering the colon.

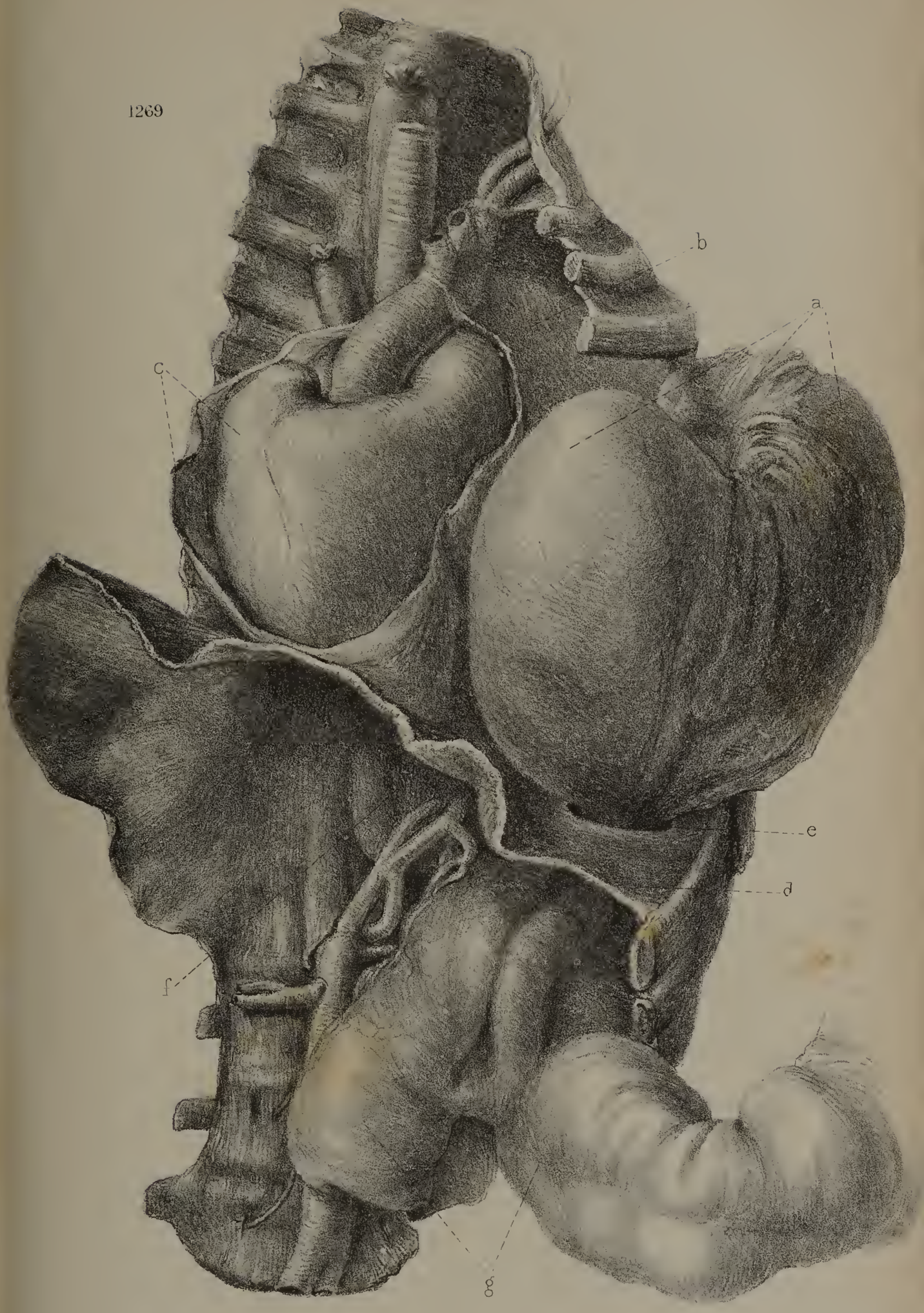
This very interesting specimen was taken from the body of Sergeant Denis Barry, 88th Regiment, who died on the 4th January, 1833, in consequence of gangrene of the left lower extremity, produced, as it was supposed, by metastasis of a severe rheumatic affection of the larger joints. He was wounded at Fuentes D'Onores, in 1811, in the left breast; death took place twenty-two years after the wound. After receiving the wound he had never been able to wear his knapsack with ease, and his breathing became much affected whenever he walked quickly or ascended a hill.

No. 1269. Diaphragmatic hernia, the result of a gunshot wound. The greater part of the stomach, the transverse arch of the colon, and omentum, are seen in the left pleural cavity. This lung adheres very firmly and closely to the walls of the chest, as low as the ninth ribs, by adhesions of long standing.

The lung is pushed to the upper half of the cavity, but, on account of adhesions to the ribs, it is compressed into a thin layer, which lines the walls of the thorax. The heart is also displaced, and lies behind and a little to the right of the sternum. The large curvature of the stomach lies in front, and first showed itself on opening the chest. The transverse arch of the colon is to the left of the stomach, and between it and the ribs. The stomach reaches a little higher in the chest than the gut. There is an opening in the diaphragm, with rounded margins, $2\frac{1}{2}$ inches in diameter, situated 2 inches to the left of the œsophagus; the peritoneum lining the diaphragm proceeds through the aperture, and is continuous with the pleura. Although the serous surface around the opening is smooth and uninterrupted, still there is some thickening and an appearance of old cicatrization. In the pleural sac close to the opening in the diaphragm, on its posterior and external margin, the stomach, colon, and omentum adhere firmly to the pleura, covering the diaphragm and ribs to the extent of a few inches. There are also two broad, thin, and loose bands of adhesion, about 8 inches in length, stretching from the omentum to the base of the pericardium. The stomach and colon are, however, loose and free in the pleural sac; the parts in the aperture of the diaphragm are free from adhesions, and not contracted, and the fingers were easily introduced through it, from the abdomen into the thorax. The œsophagus, after penetrating the diaphragm in the usual place, takes a sharp turn to the left side; the stomach then enters the thorax, a portion of the cardiac extremity of which still, however, lies in the abdomen, in front and to the right of the spleen; the larger part, having entered the chest, curves round and descends to the opening in the diaphragm. The pyloric orifice lies immediately in the aperture; about a foot and a half of the transverse arch of the colon, with the omentum attached, are also in this cavity. On the skin exactly opposite and corresponding to the diaphragm are two cicatrices in the left side of the chest, one situated between the eighth and ninth ribs, three and a half inches from their cartilages where the musket-ball had entered, and the other, its exit, between the eleventh and twelfth ribs, close to the transverse processes of the vertebræ. The ball, in its course through the thorax, must have wounded the diaphragm, and permitted the hernia of the stomach and colon. See Plate VIII.—*Donor, Dr. Williamson, Staff-Surgeon.*

31st Regt.—Private Thomas Fletcher, aged 40, an Irishman, a weaver, 5 feet $6\frac{1}{2}$ inches; stout and healthy frame. Total service, $20\frac{5}{12}$ years, of which $19\frac{6}{12}$ years were spent in India,

1269



a Stomach, Colon & Omentum in the left side of the Chest. b. Lung compressed. c. Heart & Pericardium. d Diaphragm. e Aperture in Diaphragm. f. Œsophagus & portion of Stomach. g Small & large intes

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where he had two or three attacks of intermittent fever. He was wounded at Sobraon, February 10, 1846, by a musket-ball in the left side of the thorax, entering between the eighth and ninth ribs, and about four inches from their cartilages, and making its exit close to the transverse process of the eleventh dorsal vertebra, and between the eleventh and twelfth ribs.

He landed in England on the 13th January, 1847, in good general health. Admitted into Fort Pitt General Hospital on the 20th January, under observation for the wound in his side. Discharged well on the 2nd February. On the 11th February, immediately after his dinner, he was attacked with vomiting and pain in the left side over the spleen; this continued until the evening of the 12th, when he was admitted into this hospital. He could not account for his sickness; he had been quite well in the morning, and his bowels had been acted on.

On admission his skin was cold, pulse quick, small, and wiry, 90; respiration natural; pain over the spleen increased on pressure. On the 13th the pain had left the side and shifted to the shoulder and clavicle. It was not acute. He was free from all other pain and all inflammatory symptoms to the hour of his death, neither was there any pain on pressure in the region of the stomach, nor any tension of the belly, but, on the contrary, an extraordinary hollowness, or drawing in about the umbilicus, resembling very much in appearance a man suffering from "Asiatic cholera."

His bowels could not be acted on, and the irritability of his stomach and vomiting of all things swallowed continued to the last. He began to sink in the afternoon of the 16th, gradually became weaker, and died on the 18th February, it being eight days from the time he was first attacked with vomiting, and twelve months from the time he was wounded.

The treatment consisted first of an emetic, with a blister over the spleen. Afterwards full doses of calomel and opium, morphia, and hydrocyanic acid, frequently repeated, castor-oil combined with croton-oil, both by the mouth and injections, turpentine injections and fomentations to the abdomen, hot baths, and hot bottles to his feet, and beef-tea injections, were the remedies administered.

Post-mortem Examination thirty hours after death.—*External Appearances.* Body stout and well formed; skin shrivelled, more particularly that of the hands and feet; features contracted and indicative of a person having died under great suffering; muscles rigid. *Cranium.* About one ounce of fluid at the base of the brain; veins of the pia mater congested, as also those of the velum interpositum and choroid plexuses; section of the

brain presented many bloody points; weight of brain, 3 lbs. *Thorax.* The structure of both lungs was healthy; the posterior part of the right was attached to the chest by adhesions of long standing; the heart was of its natural size, and its structure healthy. *Abdomen.* On tracing the small intestines, five intus-susceptions were found, the first situated a foot and a half from the duodenum, and the other four were generally from eight to ten inches apart. The portion intus-suscepted was in each about two inches; there was no vascularity or congestions in the intus-susceptions, or in any of the abdominal viscera. Both portions of the stomach, viz., the part in the chest and the part in the abdomen, contained a quantity of dark fluid, mixed with portions of food and medicine. The duodenum and upper part of the jejunum, as far as the first intus-susception, was distended with flatus; the small intestines below the invagination although not distended, but in their normal condition, were coated with mucus tinged with bile. The caput cæcum and ascending colon, to where it entered the chest, were distended, and contained a quantity of fluid and hardened fæces.

The transverse arch of the colon was distended with flatus and some feculent matter; the descending colon and rectum were empty; liver healthy, weight, 4 lbs. 4 oz., kidneys healthy, weight of right, 6 oz., left, 6 oz. 2 dwts.

Remarks.—Fletcher was in perfect health until immediately after he had taken a full meal, which, no doubt, he had frequently done since the time he had received the wound. It may, therefore, be asked what was the immediate cause of vomiting, and the sudden attack of illness; probably, the portion of the stomach still in the abdomen having become over-distended, spasmodic contraction of the diaphragm may have been induced, and prevented the food from entering the larger portion of the stomach, situated in the thorax, but it might have been supposed that after the contents of the lower portion had been ejected, irritability of this organ would have ceased, which did not take place, but continued to the last without the slightest alleviation.

The reason for supposing it was spasmodic contraction of the diaphragm is, that on examination the opening in this muscle was found large enough to admit two fingers with ease along the side of the gut.

Although it was, however, known that he had been wounded in the side, yet it was never suspected that the wound was in any way connected with the disease for which he was under treatment; his general appearance was most peculiar, the contracted state of the abdomen, the total absence of all pain in

his belly after the first day, and of all inflammatory symptoms, and the occurrence of pain in his left shoulder. It is known that in diseases of the liver pain in the right shoulder is a common symptom. The pain in Fletcher may have had the same origin, whatever that may be, as no satisfactory explanation has as yet been given of it, except that it may depend upon some irritation of the ramifications of the phrenic nerve communicated along its course to its origin from the cervical and bronchial plexus, and then reflected by twigs distributed to the shoulder. A number of the symptoms which presented themselves in this case were those usually attendant on strangulated inguinal hernia, viz., incessant vomiting and obstinate constipation, pulse small and wiry; but there was no stercoraceous vomiting, dissection showing that it could not occur.

The intus-susceptions were the first morbid appearances seen on opening the body, and the remark was immediately made that they did not present the appearance of invaginations which are the cause of death, but rather what are seen to take place during the latter stages of life when a patient has no symptoms of derangement of the intestinal canal. It is, therefore, probable that the intus-susception took place after the commencement of the fatal disease, and was not the cause of it, but to be attributed to the violent peristaltic motions excited by the action of the croton-oil which was administered.

At the first view of the case it appeared to throw some light on the physiology of vomiting, as to how far the muscles of the abdomen and diaphragm co-operate with the stomach in this mechanical act. But the whole of the stomach not being displaced into the thorax, whatever influence they possess may have been, therefore, exercised on the part in the abdomen.

It is also to be supposed that the contents of the stomach, and transverse arch of the colon, situated in the thorax, remained the same from the time they became strangulated.

Mr. Guthrie's remarks as to wounds of the diaphragm never uniting may be the fact generally, but in a case where a wound of the diaphragm is small, and the patient is kept quiet and on proper diet, there appears to be no reason for supposing that the wound would not close; the base of the lung might adhere to the diaphragm, close up the opening, and so form a boundary between the thorax and abdomen, and thus prevent a hernial protrusion. Besides, it is only in those cases where a hernia has taken place that a surgeon, on an autopsy taking place, makes such a careful examination of those parts. I am therefore disposed to think that in some cases of wounds in the lower part

of the thorax the diaphragm has been injured, and the patient has recovered from its effects so as never after to draw any attention to it; and that union of the divided fibres of the diaphragm or pleuritic adhesion have taken place in some cases, and prevented a hernia from forming, as is possibly the case in that of Greenfield and Eally, and others.

It is very remarkable that this extraordinary malposition of the stomach and colon should have produced so little inconvenience to the patient, and that in every respect Fletcher was in perfect health until strangulation took place.

The case of Sergeant Denis Barry, who was wounded in nearly the same situation, where there was also a hernia of the stomach and colon into the thorax, and continued to do his duty as a soldier for nearly twenty-two years, shows how little inconvenience he also experienced. Had the exact state of things been accurately diagnosed during life, what steps could have been taken for his relief? Would a surgeon be warranted in cutting into the abdomen and reducing the hernia?

In this case it would have been impossible, on account of adhesions of the displaced viscera to the surrounding parts. The diagnosis of such a displacement would be extremely difficult, if not impossible. There was, in January, 1847, under my care in this hospital a patient wounded in nearly the same situation, viz.:—

Private Thomas Eally, aged 25, was wounded on the 29th December, 1843, at Marajpore, by a grape-shot, which entered about three inches below and to the outer side of the left nipple, between the eighth and ninth ribs; it was cut out shortly after the accident, behind and at the angle of the eleventh rib. He suffered severely from pleuritis of the left side in 1844. His general health is now (January, 1847) good, and he has no complaint except shortness of breathing, or rather uneasiness in his chest when wearing his knapsack and cross-belts.

It is probable that the diaphragm was wounded in this case also; if so, the wound may possibly have closed, or pleuritic adhesions have formed and prevented a hernial protrusion. If, however, Eally was seized in the same manner as Fletcher, after all other means had failed, should operative measures be resorted to? I am disposed to think that few surgeons would be inclined to undertake such an operation from the great uncertainty as to the state of the parts that might exist.

GUNSHOT WOUNDS OF THE HEART AND GREAT VESSELS.

The Museum can only furnish three cases of these formidable wounds.

No. 173. Heart exhibiting a lance wound, which penetrated the right ventricle through the diaphragm. Death five months after the wound.—*Donor, Mr. Guthrie*—who remarks: "If this man had lived long enough, he might have furnished an instance of hernia of the stomach or intestines into the pericardium."

No. 174. A punctured wound of the right ventricle, close to the apex. Instant death.

No. 403. Abdominal aorta, showing a horizontal wound through its coats, caused by the point of a bayonet. Death three hours after.

Class V.—Gunshot Wounds of the Abdomen.

Division 1.—*Simple Flesh Contusions and Wounds.*

Four cases of simple flesh wounds arrived from India, and have been discharged to duty. In one case the ball is reported by the surgeon of his regiment to be lodged somewhere above Poupart's ligament; profuse hemorrhage followed, which stopped of itself. In another case the ball entered below the ensiform cartilages on the right side, and passed out at the extremity of the last floating rib on the right side. The third was a slight wound from grape-shot.

Division 2.—*Contusions and Non-penetrating Wounds.*

Two cases were admitted from India, and have been sent to duty.

64th Regt.—Private James Falloon[a], wounded at Cawnpore, November 28, 1857, by a musket-ball which entered two inches below the ensiform cartilage, on the right side, and at the margin of the cartilage of the false ribs, and passed downwards and backwards, and was cut out opposite the extremity of the last floating rib. He vomited florid blood, according to his own statement, at the time; there was no external bleeding. The ball passed behind the ribs, and there is little doubt that the peritoneum was slightly wounded, and probably the diaphragm.

August 18, 1858. Wound healed. Duty.

35th Regt.—Private John Lowe, aged 39, wounded January 25, 1857. The ball entered the abdomen on a line with the margins of the ribs, and near their angles; it was extracted

[a] Noticed by Assistant-Surgeon Chaumont, Rifle Brigade, in the Edinburgh Monthly Journal for December, 1858.

shortly after through an incision made in the epigastric region, it having lodged beneath the skin in that locality; no discoloration of the integuments between the entrance of the ball and where it was cut out was at any time perceptible to mark its course; he vomited blood at the time; had not any external bleeding; his wound healed in the usual period, and he was discharged from hospital six months after its receipt. He has since suffered much from pain and tenderness in the region of the epigastrium, and he has been unable to wear his accoutrements, the pressure causes so much suffering; under the circumstances, he is unfitted for the active duties of a soldier.

April 28th. Invalided.

Division 3.—*Penetrating or perforating, with Lesion of the Intestine.*

Two were admitted from India, and both will be invalided,

It is well known that gunshot wounds of the solid viscera, as also those of the small intestines, are generally fatal; still, this is not invariably the case, as is seen by the very fine specimen, No. 1271. Wounds of the large intestines are also not so formidable or dangerous, especially when the wound is in the neighbourhood of the cæcum or sigmoid flexure, where the intestine is more fixed and bound down, and only partially covered by the peritoneum.

Two cases of abnormal anus by gunshot perforation appear to be a large proportion to the total wounded, 603. The 2296 cases of wounded from the Crimea furnish only one such case, Private James Beehan, 19th Regiment, who is now in Guy's Hospital, never having recovered from the wound, though it has occasionally closed and again re-opened, as has taken place in every one of the three cases now detailed. A note from Mr. Birkett, dated 21st January, 1859, says:—"He (Beehan) has since my last report suffered with severe attacks from albuminuria, and is anasarcous." For particulars of this case, *vide* page 330 of the Report on Crimean Wounded.

In the case from which preparation No. 1270 was taken, the wound is likewise on the left side, and the colon was wounded at a part where it is *entirely covered* by peritoneum. This makes the fifth case of wound of the large intestine detailed in this Report, and in that of the wounded from the Crimea.

It is worthy of remark that in all these five cases the artificial anus is on the left side, and almost precisely in the same situation, with the exception of the one, No. 1270. In Hogan there was a partial fracture of the ilium. In Beehan there was an injury of the vertebræ, and probably also of the kidney. In

M'Cartney and Henderson there was no such complication. Private Henderson was under my care in 1844.

As already stated, all these five cases of wounds of the large intestines, and also the three of the diaphragm, are on the left side. This at first sight would lead to the supposition that the left side of the body was more exposed in action than the right, and might probably be accounted for by soldiers placing the left side more forward when in the act of firing, supposing that the wounds were received when in this position. This appears, however, not to be the case, but is to be attributed to wounds of the right side of the abdomen being more fatal than those on the left, in consequence of the liver occupying so much space on that side; for on examining the wounds in the thorax received from India, out of 19 I find that 15 were wounded on the right, and only 4 on the left side.

The following three very interesting cases of gunshot wound of the sigmoid flexure of the colon are examples of this lesion.

32nd Regt.—Private Cornelius Hogan[a], aged 34, wounded June 30th, at Lucknow, in the left hip, an inch and a half below the crest of the left ilium, and nearly midway between the anterior and superior spinous process of the ilium and the spinous process of the back. The ball entered and must have passed into or wounded the sigmoid flexure of the colon, and is supposed still to remain in, as it has never, as far as the man knows, been passed by stool. For twenty-two days he passed his fæces entirely through the opening, but since then he has never passed any feculent matter through the wound, but only flatus; this also has ceased for the last fortnight, but there is still a considerable discharge of purulent matter, and he complains of pain in the back.

He was transferred from Fort Pitt to Yarmouth Hospital, July 4, 1858, and from thence was sent to the depôt of his regiment, which he joined on October 28th.

He was tried by court martial on December 9th, and was sentenced to forty-two days' imprisonment at Fort Clarence, with such labour as the surgeon in charge considered him capable of performing without risk. Previous to appearing before the surgeon he had undergone an hour's shot drill, which caused the wound to reopen. He was consequently sent to the garrison hospital, and was transferred to Fort Pitt, January 29, 1859, with fæces still passing through the wound.

March 13, 1859. Wound healed, and he enjoys good health; but has been invalided as being unfit for further service.

[a] This case is noticed in the Edinburgh Monthly Journal for December, 1858, by Assistant Surgeon Chaumont.

10th Regt.—Private Michael M'Cartney, aged 27, wounded by a musket-ball, May 11, 1858, at Chitawarah, which passed through the left side of the body, from behind forwards, passing through the diameter of the colon. For a period of three months he passed fæces through the opening.

February 25, 1859. Wound still continues to discharge; complains of great pain in the abdomen; has piles, and is troubled with diarrhœa; he is rather anemic in appearance.

March 4th. Diarrhœa still continues; a truss has been applied over the fistulous opening.

10th. The truss discontinued, as it causes much flatulence.

15th. No improvement; complains of cold and shivering.

13th Regt.—Private John Henderson, aged 36, wounded at Cabul, in October, 1840, by a musket-ball which entered the left side at the extremity of the last rib, and made its exit about two inches from the spine, passing obliquely downwards and backwards, penetrating the colon, followed by very profuse discharge of fæces; the wound was of a very dangerous nature. He was taken prisoner, and suffered great privations. He was admitted into Fort Pitt, July, 1844, with both apertures of entrance and exit of ball discharging fæces. Various methods of treatment were tried to effect a cure, but without success; the wounds would close for a short time, and then break out again, so that he was eventually discharged the service, August 26, 1844.

The following preparation is from a sailor who was wounded in the act of rowing towards the enemy. It is to be regretted that there is no detailed history of this interesting case; but, from the state of parts now exhibited, there can be no doubt that the patient lived for some time, perhaps years, in a most wretched condition.

No. 1270. Gunshot wound of the large intestine, terminating in artificial anus. Vide Plate IX.

The ball entered on the left side, wounded the colon as it is curving downwards to become the descending colon, and passed out, fracturing the eleventh rib at its anterior third. The aperture in the abdominal walls is about 3 inches in diameter, and a knuckle of intestine protrudes. The opening in the gut is about $1\frac{1}{2}$ inches in diameter, and the mucous surface is everted and has become very firmly united to the integuments by adhesions of old standing. So much is this the case, that the mucous membrane and skin have become quite continuous, the intestine has also contracted firm adhesions to the adjacent peritoneum on the inner side.

A quill is inserted into the upper part of the gut, which is

a Contractions;
b. Contractions laid open.

G.H.Ford

of the usual caliber, and the mucous membrane is healthy. The bowel below the wound is very much contracted from want of use, but pervious. The fæces were voided through the preternatural opening.

The following preparation of a perforating gunshot wound through several folds of the small intestine, followed by recovery, is, as far as I am aware, quite unique.

No. 1271. Two pieces of the small intestine; jejunum showing the results of injury by gunshot wound. The larger piece of intestine exhibits three constrictions of that gut, two of which have been laid open to show the interior, and the third one remains entire. In the inside these contractions present much the appearance of a cicatrix, being totally devoid of the normal villous character of mucous membrane of the intestine; above and below it is bounded by a sharp and well-defined line of the natural lining of the intestine. Externally these constricted points are covered by a layer of old granular lymph; they were of a darker hue and more vascular than other portions of the small intestine, which, however, presented throughout the arborescent vascularity and soddened state constantly observed in rapidly fatal cases of blue spasmodic cholera. The smaller piece of intestine exhibits a fourth constriction of the gut, capable of admitting only a good-sized quill..—*Donor, J. R. Taylor, Surgeon, 80th Regiment.*

This preparation is from Private Paul Massey, 80th Regiment, who was shot in the abdomen at the battle of Ferozeshah, December 22, 1845. The symptoms consequent immediately upon the wound appear to have been so inconsiderable that it is recorded by Dr. Mac Donald (then surgeon of the regiment) that it was his opinion that the ball had coursed round the abdomen, and not penetrated or passed through that region. The patient, however, shortly before his death, stated he had passed blood by stool after the receipt of the injury. Recovery followed slowly, but appeared to be perfect. The soldier, however, became subject to attacks of bowel complaint, gradually becoming more frequent, and for the last twelve months of his life he was nearly constantly under treatment for symptoms of dysentery of the land scorbutic type. Whilst in hospital on account of this disease, he was seized, on the 13th May, 1851, with blue spasmodic cholera, terminating fatally the same day. Death five and a half years after being wounded.

Cholera was then prevalent in the neighbourhood, and became epidemic in the regiment in the following month.

Post-mortem Appearances, an hour and a half after Death.—Externally. Livid; but less so than during life; not much

emaciated; cicatrix of a wound in left linea semilunaris, about four inches above the crista ilii, and on the same plane posteriorly, another cicatrix, an inch to the left of the spine.—*Head.* General livid appearance of meninges and cerebral substance, some milky opacity on the upper surfaces of the hemispheres, slight serous effusion under arachnoid.—*Thorax.* Adhesions on right side; lungs partially collapsed; structure healthy; heart normal; fluid blood in left ventricle.—*Abdomen.* Omentum firmly adherent to the internal surface of anterior cicatrix, and gathered into a knot at that point. The intestines neither there nor elsewhere morbidly adherent, but the fold of intestines immediately opposed to the cicatrix presented a line of contraction, as if a ligature had been tied round the gut. The fold of intestine immediately above presented the same appearance, and on the first fold, four inches from the first noticed contraction, and situated in a line below the umbilicus, was another similar appearance. The mucous surface of the small intestine generally was pale-pinkish in colour; no ulceration of large intestine; upper part of colon attenuated and contracted in situ; rectum thickened; stomach pale; liver small, congested; gall-bladder half filled with dark viscid bile; spleen small; kidneys healthy.

It is curious to remark, on post-mortem examination of a case of direct gunshot perforation of the abdomen, that the intestine is wounded in many places considerably removed from the direct course of the ball. Is this removal of wounded portions of intestine from the line of the ball due solely to the natural peristaltic action, or to something more than this, as the result of the injury? Probably the latter influence is considerable; as it has been remarked, and I believe truly, that under perforation of the intestines by ulceration there is not only contraction in caliber, but marked *shortening* of the intestinal canal. This action beyond the peristaltic may be expected, and really appears to follow equally perforations by injury and disease, thus explaining the withdrawal of the wounded points of intestine from the line of the ball, as indicated by the orifices of entrance and exit.

In a case that came under the observation of Deputy Inspector General T. Alexander, C.B., the small intestines were found to have been wounded sixteen times[a]; and in preparation 1272 the small intestines are perforated four times, and the mesentery twice.

No. 1272. Gunshot wound of the small intestines and me-

[a] Mr. Guthrie's Commentaries, p. 576.

sentery, the former wounded in three places, and the latter in one. Death twenty-four hours after the accident.

No. 1125. A gunshot wound of the large curvature of the stomach. The man lived eight hours after the accident.

Class VI.—Gunshot Wounds of the Back and Spine.

Division 1.—*Simple Flesh Contusions and Wounds.*

Three were admitted, and two were sent to duty.

Division 2.—*With Fracture of the Vertebræ, without Lesion of the Spinal Cord.*

Six have been admitted; two have been discharged to duty, two invalided, and two remain; all were the result of musket-balls; one was a case of fracture of the ilium and spinous process of the lumbar vertebræ, with the wounds still unhealed. One with fracture of the spinous process of the dorsal vertebræ; wounds still open.

Two cases of wounds of the sacrum; in one of them the wound was still open, and a probe could be passed right across from the one aperture to the other. The last was a wound of the spinous process of the lumbar vertebræ, also still unhealed.

The two following cases are examples of this description of wound.

93rd Regt.—Sergeant James Munro; wounded at Lucknow by a musket-ball through the loins; the ball entered a little behind and below the crest of the left ilium, and passed a little upwards and backwards, nearly across the back, and made its exit immediately above the crest of the right ilium; numerous pieces of bone came away from both apertures. Shortly after the injury the urine was tinged with blood, and it is doubtful whether the two last vertebræ are injured.

12th July. The aperture of exit of ball has closed; that of entrance is still open, and discharging, and the probe can be introduced for a considerable distance, but bare bone is not detected; he is unable to sit upright, and he has lost considerable power over the limbs; has incontinence of urine.

Invalided 29th September, 1858.

24th. Private Patrick Farrell, aged 30, wounded 7th July, 1857, by a musket-ball which entered on the right side of the third lumbar vertebra, two inches from the spinous processes passed across the back, and made its exit a little below the centre of the crest of the left ilium; several pieces of bone came away from the aperture of exit.

August 2nd. Aperture of entrance is healed; that of exit

is still discharging, leading down to diseased bone. There is some thickening over the spinous processes of the lumbar vertebræ. Undisposed of.

Division 3.—*With Lesion of the Spinal Cord.*

None were admitted from India; but the following cases from preparations in the Museum illustrate this injury.

No. 2912. Dorsal portion of the spine, showing a bullet lodged in the canal. The ball appears to have entered exactly through the centre of the arch, which, with the spinous process, is partly broken away. From a sergeant of the 5th Dragoons, who was shot by a private of the regiment.

No. 2913. Is from Private R. Greive, 3rd Light Dragoons, who was wounded at Rhamnuggur, Nov. 21, 1849, by a musket-ball which entered below the right mamma, penetrated the lower lobe of the right lung and diaphragm, grazed the upper surface of the liver, and passed between the head of the eleventh rib and the vertebræ. It lodged in the spinal canal, and caused paraplegia. Death four days after the injury.

No. 2914. Fifth dorsal vertebra, exhibiting fracture of part of the right side of its arch by a pistol-ball which is lodged in the canal. The ball entered the right deltoid muscle and proceeded downwards on the outside and upper part of chest near to the spine, and finally lodged in the canal. The course of the ball was not known till the death of the patient, which took place thirty days after the injury. The body and limbs below the navel were deprived of sensation and motion; the urine required removal by the catheter, or dribbled away; and the fæces were passed involuntarily; followed by sloughing of the integuments of the sacrum and trochanters. From an officer who was wounded in a duel.

No. 2915 is a gunshot fracture of the atlas and axis. The ball dropped into the mouth, and the man died in thirty days after the wound.

Class VII. — Gunshot Contusions and Wounds of the Perineum, and Genital and Urinary Organs, not being, at the same time, Wounds of the Peritoneum.

Three very interesting cases have been admitted from India. In two very similar cases the ball passed through the left testicle, injuring the urethra, so that the patients passed urine for some time through the wounds in the urethra (as was stated in the case-book of Assistant-Surgeon Smith, 9th Lancers, who had medical charge of the men on the passage home); the fistu-

lous opening in the canal closed entirely, and the natural passage remained undiminished in size, allowing of a full-sized catheter to pass with ease into the bladder. One of them was sent to duty, and the other to modified duty. The third case was from a spent round shot, which struck the man over the pubes without injuring the integuments, producing incontinence of urine. He still remains undisposed of.

Private Peter Forbes, aged 32. Wounded at Delhi, June 18, 1857, by a musket-ball which struck the left testicle, passed through the pubes and bladder, and made its exit posteriorly in the centre of the right hip. The left testicle was so much injured that it was removed the same day. He passed his urine for one month entirely through the wound.

April 10, 1858. A large bougie was passed with perfect ease.

20th. The sinus does not now appear to communicate with the urethra.

May 1st. Removed to-day a small piece of bone from the depth of the length of the forceps, in the pelvis. There is no communication between the sinus and the urinary passages.

10th. Another small piece of bone taken away from the same depth as the former piece.

13th. The wound remains in the same state; a piece of bone can be felt by the probe, very deep and apparently loose, but cannot be reached by the forceps.

June 4th. Succeeded in reaching and recovering two pieces of bone, evidently from the internal surface of the ischium.

11th. The bone was removed on the 4th; there has been less discharge, and he is quite free from pain, and can walk about.

July 10th. At Fort Pitt; wound quite healed.

July 21, 1858. Modified duty.

75th Regt.—Private S. Young, wounded at Delhi, September 14, 1857, by a musket-ball which struck the left side of the penis, injuring the urethra and left testicle; then entered the inner side of the left thigh, and made its exit through the centre of the hip posteriorly. The left testicle came away shortly after, and he passed his urine through the wound in the side of the penis.

20th. All the wounds are now healed; No. 8 catheter can be passed with ease.

July 21, 1858. Duty.

88th Regt.—Private William Smith, wounded at Cawnpore, November 26, 1857, by a spent round shot, which caused

a bruise over the symphysis of the pubes and outer side of the left thigh; has never since been able to retain his urine.

August 16, 1858. His urine passes constantly from him, without having the least control over it. He has been supplied with a patent urinal. He complains of weakness in his loins, but is otherwise in good health.

No. 2956. Cast of a section of a urinary calculus which had a musket-ball for a nucleus.—*Donor, Sir G. Ballingall, Edinburgh.*

The following case illustrates the tricks that soldiers play upon each other.

Private James Hussey, aged 25, 18th Regiment, had served abroad seven years, of which upwards of six were spent in China. At Hong Kong, on the 24th October, 1845, he was taken to the guard-room in a state of intoxication, and on becoming sensible he found a piece of cane, about a foot long, in the urethra, retained by a string tied round the penis, and the removal of which was attended with slight hemorrhage. About a month afterwards he complained of pain over the pubis and difficult micturition, the urine when passed being mixed with blood and mucus. On introducing a catheter into the bladder, a grating sensation was experienced.

He was admitted into Fort Pitt Hospital on the 19th May, 1847, in a very emaciated condition. His skin was dry and scaly; gums spongy and scorbutic, and he likewise suffered from diarrhœa, which attacked him at the time he was leaving China. He complained of constant and severe pain over the hypogastric region and along the course of the urethra; he was unable to retain his urine, which continually flowed from him in small quantities. On introducing a sound into the bladder, a large stone, supposed to be of soft consistence, was at once detected. His general health having considerably improved, and the diarrhœa having in a great measure been checked, the lateral operation of lithotomy was performed. The patient had a favourable recovery. The man was not aware of a portion of cane having been driven into the bladder, nor was this circumstance known when the operation was commenced. No. 2004.—Portion of cane, being part of the stem of a tobacco-pipe removed from the bladder by the operation of lithotomy. It is $3\frac{3}{4}$ inches in length, and hollow in the centre, and was completely imbedded in the centre of a soft stone; the portions extracted must have weighed about two ounces; the fragments preserved weighed one ounce, and are composed of uric acid.—*Donor, Dr. Williamson, Staff-Surgeon.*

(*To be continued.*)

Art. XVIII.—*On Compound Fracture of the Patella.* By Josiah Smyly, A. B., Surgeon to the Meath Hospital.

It has been stated by Mr. Erichsen, that "compound comminuted fractures of the patella, especially if occasioned by bullet wounds, and injury of the joint, are usually cases for immediate amputation." Although agreeing with this aphorism of that distinguished surgeon, yet I feel more inclined to coincide with the opinion put forward by Guthrie, namely, to substitute excision of the joint for amputation, in every case "where the popliteal artery and nerves are not injured"[a]. The great danger to life in cases where the knee-joint has been opened, and suppuration results from the lesion, should not be overlooked, nor should the surgeon allow himself to be lulled into false security by the absence of urgent symptoms during the first few days. The case is one demanding immediate operative interference, for if the period for primary amputation is permitted to pass by, it is not probable the patient will survive to reach the time for a secondary operation; the results of intermediate amputation are such as to preclude the hope of success. The records of cases of this injury, when, owing to the efforts of a good constitution, the patient has lived without operative aid, are so very few that they should not weigh against the above rule of practice; besides, the limbs which have been saved at such a risk turned out to be almost perfectly useless.

The following cases illustrate:—

1st. The danger of compound fracture of the patella which involves the knee-joint.

2nd. The unsuccessful result of intermediate amputation.

3rd. The severe suffering and imminent danger to which the patient is exposed, before he arrives at the period for secondary amputation.

Case I.—J. Mortimer, aged 35, a bricklayer, was admitted into the Meath Hospital, under the care of Professor Porter. He had just fallen from a scaffolding, and pitched upon his left knee. The patella was found broken into three or four pieces. The joint was laid open, so as to admit the finger, and was filled with blood. Amputation of the limb was urged upon the patient, but he resolutely refused to submit to it. The wound was drawn together, and covered with flour and white of egg. There was no constitutional depression.

[a] Commentaries on the Surgery of the late War, p. 82.

Next day there were scarcely any symptoms of local inflammation; pulse 95. Amputation was again proposed, but the patient would not consent.

Third day. But little pain in the knee, which is not hot; pulse 85.

Fourth day. Complains of pain in the knee, which is now inflamed; 80 leeches applied over the joint.

Fifth day. Patient complains of great pain; pulse 100, hard; wound disposed to run into mortification; edges puffy; integuments of a bluish colour, with one or two vesications upon them; the knee greatly swollen; bloody serum oozing from the wound; at 4 o'clock P.M. a consultation was held to consider the propriety of amputation being now resorted to; the conclusion come to was to postpone it till a more favourable opportunity should present.

Sixth day. Patient was easier.

Tenth day. The wound was discharging a fetid sanies; the patient sweated in the night; pulse 120; general debility; decided hectic established; and, five weeks after the occurrence of the injury, he died, if not suddenly, at least unexpectedly. During this time the necessity of submitting to removal of the limb was frequently urged upon him.

On examination of the articulation after death, the patella was found broken into four fragments, totally stripped of cartilage, and eroded. The condyles of the femur were very extensively denuded; the edge of the tibia was also stripped; the synovial membrane highly inflamed; a quantity of foul and fetid pus was in the cavity of the joint, which communicated by a large opening posteriorly with an abscess situated in the ham, and extending both upwards and downwards in the thigh and in the leg, but more extensively below under the gastrocnemius, muscle.

Case II.—*Compound Fracture of Patella; Amputation on twelfth day after the Injury. Death on the sixteenth day.*

F. H., Esq., civil engineer, aged 29, fell with his horse in turning a corner of a road too suddenly, and sustained a compound fracture of the left patella, and lacerated wound communicating with the joint.

He was twelve miles from Dublin at the time, and as he could not bear to be removed, he was carried to an inn in a neighbouring village, and seen by a surgeon, who considered it expedient to make an attempt to save the limb. Although he passed his finger freely into the joint, and found that the patella was broken into several fragments, he closed the wound, ap-

plied a many-tailed bandage, placing the limb upon a single inclined plane, the foot being elevated.

I saw the patient on the third day after the accident, in consultation. The wound had a foul, unhealthy appearance, and from it exuded a dark-coloured fetid matter, mixed with bubbles of air. The whole limb was greatly swollen; the skin discoloured; acute pain felt in the joint; face flushed; pulse 120; great thirst; loss of appetite; bowels acted upon by medicine.

Fifth day. A good deal of matter oozing from the wound, which was enlarged by an incision two inches in length; thigh greatly swollen, tenderness extending towards the groin; pulse 130; tongue dry.

Eighth day. Countenance sunken; tongue dry and brownish; an incision was made at the external part of the thigh, down to the bone, and matter evacuated. Ordered broth, jelly, &c.

Tenth day. Had a very profuse perspiration on the night of the eighth day. Another abscess was opened on the outside of the knee.

Twelfth day. A purulent deposit has formed over the right parotid within the last twenty-four hours; discharge from the thigh very fetid. On this day Professor Porter was called in in consultation. We all agreed to propose amputation, as likely to afford the only, though slender, hope of saving life. The operation was performed; the patient was very low after it, and required to be supported by wine, &c.

Fourteenth day, third after the amputation. Profuse putrid discharge from the stump; countenance sunken; pulse 120 to 130 and 140, very weak; nourishment, wine, bark, and opium; disposition to wandering.

Considerable raving since last report; stump sloughy; patient extremely weak; pulse feeble; the stomach rejecting wine, brandy, &c. He gradually sank, and died at 3 o'clock A. M. on the sixteenth day after the accident, and the fifth after amputation.

On examination of the limb the patella was found to be fractured into seven fragments. Some were quite detached, and denuded of periosteum. There was some pus in the joint, and the red, pulpy, villous membrane, described by Mr. Key, well marked. The cartilage was not detached in any place. The abscess in the back of the thigh communicated with the joint at its upper and internal part, and insinuated itself round behind the bone to its outer side.

Case III.—*Compound Fracture of the Patella; secondary Amputation on the twenty-fifth day. Recovery.*

Eliza C., aged 34, servant, was admitted into the Meath Hospital on the 9th November, 1858. It appeared that in a fit of insanity she flung herself out of a lofty window, and sustained a compound fracture of the left patella, opening into the joint, and also a large contused and lacerated wound laying bare a considerable portion (at least the size of a half-crown piece) of the frontal bone on the right side. She was in such a state of mental excitement that amputation was out of the question; besides, the injury of the head was of so serious a nature that it alone would call for delay.

Fifth day. The whole limb was œdematous; the skin red above and below the knee, a putrid thin matter oozing from the wound, with high irritative fever. Professor Porter, who had then the charge of the case, dilated the wounds communicating with the joint; a long incision was made on the inside of the thigh, a second on the inside of the knee, and a third on the inside of the leg. Wine and opium were ordered.

Eighth day. Less local inflammation, and less fever; seems to be going on favourably; discharge from wounds fetid.

Twenty-fifth day. Has been running down with irritative fever, profuse perspiration, no sleep, although she gets a sedative draught; pulse 112. The injured portion of the frontal bone is exfoliating.

In consultation it was resolved to give the patient the only chance that remained, viz., amputation. She was so reduced that it was feared she could not bear the shock of so severe an operation. Amputation through the thigh, by the circular incision, was selected. The patient was exceedingly low subsequent to this proceeding, and was very sick for some hours after being put to bed. Ordered sedative draughts, wine and whiskey-punch.

Fourth day after amputation. Patient very low; profuse sweating; pulse never under 112 since the operation; no appetite; discharge from the stump putrid, and mixed with bubbles of air.

Seventh day. Stump going on well; she has had deep and extensive bed-sores, which are now beginning to clean, and granulate.

Twenty-third day after amputation, and forty-eighth after the injury. General health greatly improved; stump looks well, and is healing rapidly.

Thirty-seventh day after amputation. Stump nearly healed; general health restored; no signs of insanity. The patient was kept in the hospital till the end of February. She grew fat and strong, and was able to move about with the help of crutches.

Art. XIX.—*The State of the Medical Profession in Turkey.* Part III. By R. F. Foote, M. D., Constantinople; Member of the Imperial Medical Society of Constantinople; lately 2nd Class Staff Surgeon, Her Majesty's Service, attached to the Army of his Highness Omar Pasha, serving in Anatolia, Roumelia, and the Crimea, during the Russian War 1855–56; formerly Physician to the Norfolk County Hospital for the Insane, &c., &c.

(*Continued from* vol. xxvi. p. 44.)

In the latter part of the last article, I referred to the deaths and diseases. I shall now proceed to analyze the statistics more carefully. It will be noticed that, at the commencement of the statistical account, during three months ending on the 5th of November, 1855, 862 patients were placed under the treatment of our staff; and of these, 91 died. Although quite true, it only shows the mortality in the two hospitals taken together, and not that of the 150 cases of my own treated at the Palace Hospital, the general symptoms and treatment of which I am about to detail. Indeed, when we take the whole number of patients admitted during six months into this hospital, we shall arrive at a more correct account of the average mortality among 100 cases of scurvy admitted. Thus, of 608 patients received during six months, 100 were returned to their regiments as convalescents; 170 transferred to the Tent Hospital for further treatment; 160 died; 10 were invalided; 23 much improved, sent to their own homes by the authority of the Pasha, at the earnest solicitation of friends; 9 accident cases were cured; 10 were made hospital attendants; and the remaining number were in the hospital on our leaving for Seukhom Kalee in November, 1855. So that, if we take a per-centage of 25, we shall be nearer that which is correct. On the other hand, at the Tent Hospital, where nearly 800 soldiers were admitted in what may be termed the second stage of the disorder, 300 were returned as cured to their regiments; 300 were sent to the neighbouring villages as convalescents; 27 were made attendants; 15 died; 25 were removed to the Palace Hospital; whilst the remaining number either escaped to their

own homes, or were allowed to return by an order from the Pasha.

Scurvy is a well-known disease, which has, for many centuries, at various times, decimated armies and navies; and one would hardly expect to find so large a number of patients suffering from this disorder as occurred among the Turkish regiments, especially as they were close to their own shores, with a free sea communication, and with every facility in the country at hand to prevent its existence. I shall not, however, dwell on this subject, or on the history of scurvy, but rather proceed to state the symptoms which came under my own immediate observation.

The countenance was pale, bloated, and anxious; the gums swollen, and bleeding on the slightest irritation; the breath was generally very offensive. There was an inability to make the slightest exertion without great exhaustion; patients were unable to pass from the bath-room to the adjoining wards, in some instances owing to the stiffness of the joints, in others to extreme prostration and debility. When placed in bed, many appeared exhausted, and even dying. The skin was generally covered with patches or spots of a black or livid hue, as of petechiæ; whilst many had large spots of ecchymosis on the legs or arms, and frequently foul ulcers. The respiration was very hurried on the slightest exertion, and there was a good deal of dyspnœa. The tongue was clean, flabby, but indented at the edges. The appetite was often ravenous, or but little impaired. There was generally a craving for fruit and vegetables. Thirst was often a predominant symptom. In many there was much emaciation, but in the majority the body was but little reduced. Nervous irritability, restlessness, and general anxiety, were more or less observed. The urine was small in quantity, and generally reddish-brown in colour, as far as observations could be depended upon; but from the absence of proper vessels to receive it, and from the preference of the Turk, if possible, to go to the "memshaneh," water-closet, in preference to using any vessel in the chamber, accurate observations were generally precluded; whilst, in other cases, when the patients were not allowed to leave their chambers, the existence of diarrhœa and dysentery rendered the observations of little practical value.

Of these cases, more than 77 per cent. suffered from diarrhœa or dysentery; 75 per cent. from intermittent or remittent attacks; 10 per cent. from contraction of the knee-joint; and more than 5 per cent. from ophthalmic disorders, which appeared to have been very much neglected.

The *diarrhœa* was marked by flabby, clean tongue; pulse

very feeble. Alvine evacuations sometimes thin and colourless, resembling the evacuations of cholera; at other times bilious, and mixed with blood. Sometimes they terminated fatally, whilst others ran into an adynamic condition of dysentery.

The *dysentery* exhibited itself in a low adynamic type. The tongue was clean; pulse small and compressible. The evacuations contained shreds of the mucous coats of the intestine. There were much tenesmus and tenderness of the abdomen. For a longer or shorter period the bilious secretions had been disordered, and in all, some time during the attack, scurvy with diarrhœa existed.

In the progress of the more severe cases, copious effusions of fluid dark blood, with detached portions of the mucous surface of the intestines, have been noticed in the evacuations; with coldness and lividity of the surface. Discoloration of the skin, breaking out of old sores, falling out of the teeth, great loss of flesh, prostration of strength, terminating in death in 50 per cent. of the cases thus attacked.

The intermittent and remittent attacks characterized 75 per cent. In some, a regular cold stage, followed by heat, and terminating in greater or less amount of perspiration: all degrees, from a well-marked quartan or tertian to a mild case of remittent.

The cases complicated with bronchitis were indicated by difficulty of breathing and nervous depression rather than by cough, pain, or expectoration,—the latter symptoms being generally absent. Our attention being directed to auscultation and percussion, distinct bronchial affections were discovered. Towards the fatal termination, the breathing became more difficult; the patient was often unable to lie down in bed, with cold extremities, clammy sweats about the face and neck, and suppressed urine.

Latent or typhoid pneumonia was observed in four instances; and attention was directed to the thorax by similar symptoms to those in bronchitis at the commencement; but on percussion much dulness was found in the inferior lobes, with auscultatory signs of red or gray hepatization.

Abscesses existed in 4 per cent.; generally deep-seated, and occurring in the lower extremities.

Three patients in a dying state—one suffering from hydrothorax, one from typhoid symptoms, and one from general dropsy—died soon after admission.

I have stated that 78 per cent. suffered from diarrhœa or dysentery; but I must not omit to mention that typhoid symptoms were present in the fatal terminations.

Of the 101 cases of scurvy I shall now detail a few, noticing the principal symptoms, as illustrative of the whole; and afterwards mention the treatment, before proceeding to speak of the diseases admitted not complicated with scurvy:—

Case I.—Mehmet Ally, of the 4th regiment, 2nd battalion, a private, stated that he had been stationed for some months at Eupatoria, when admitted, August 11, 1855, to the Palace Hospital; that when well, his food was rice, brown, hard biscuit, with an occasional small quantity of dry salt mutton, and a small portion of fat (called butter); was taken ill two months ago, and immediately bled by the "Djerrah" of the regiment. He subsequently saw the medical officer, who ordered him to the hospital, where he was placed on quarter diet, and received medicine. Whilst in the hospital he suffered from diarrhœa, with ague,—the latter having set in three weeks after admission; upon which attack he was bled to the amount of 100 drachms; and on complaining, two days afterwards, of pain in the hypochondriac region, he was ordered 16 leeches. He stated also that he had been sent in the steamer from Eupatoria to Varna; that several hundreds of sick men were on board; and that no medical officer, medicines, or proper food, was provided—indeed, that with the exception of a hard brown biscuit, with which each man had been supplied on leaving the hospital, they had no food; that not even sufficient water was supplied; and that many of his friends died for want of a drop of water to quench their burning thirst. He had been, on his arrival, placed in a boat with many others; and on coming to shore, being unable to walk, was dragged to a bullock-waggon, and indeed beaten by the officer who was superintending the landing of the sick.

His present symptoms were as follows:—The skin was covered with petechiæ; countenance anxious; gums swollen, red, and ulcerated; pulse small and feeble. He complained of much pain in the calves of the legs, and the knees were greatly swollen, stiff, and contracted. The skin was cold; but he stated that towards evening in each day he became warmer, and that about midnight the perspiration broke out, but it was generally cold, and that he never became thoroughly warm. The bowels have been opened eight times during the twenty-four hours, the dejections of a pale colour, the urine high-coloured and acid.

12th, 8 o'clock A.M. Has passed a more comfortable night, and felt warmer, with more perspiration; the bowels relaxed four times since last seen, and more bilious in appearance, conjunctival injection, which was yesterday of a greenish hue, is

to-day more natural; skin is moist. The diarrhœa appears to be kept up by the want of any night-stool or other convenience of the kind in the room near his bed; ordered to take "pilaff" in the middle of the day.

13th. Much the same; no increase of fever or diarrhœa; "pilaff" not given.

15th. Daily improving; takes his food and medicine regularly.

16th. Ordered boiled vegetables with the soup.

17th. The gums more healthy in appearance; the petechiæ less distinct.

24th. No return of diarrhœa during the past week; gums nearly well; appetite good; pulse fuller and stronger; general appearance of countenance healthy; bowels open once daily; urine healthy; to take full diet, and be sent to the Tent Hospital in three days.

Case II. Usain Mahmet admitted February 10, 1855, suffering from scurvy, latent pneumonia, and diarrhœa, from the barracks, where he had been five days quite neglected; died three days after admission.

Case III. Mustapha Mahmout admitted July 7, with scurvy and dysentery; died on the seventh day after admission.

Case IV. Allih Achmet, for scurvy and diarrhœa, with intermittent tertian attacks, admitted July 10; discharged on the 25th to the Tent Hospital.

Case V. Mahmet Usain admitted July 9, with scurvy, diarrhœa, and intermittent fever; discharged to the Tent Hospital, convalescent, on the 24th.

Case VI. Hassam Ahmet, 6th regiment, 4th battalion, admitted July 9, from the Turkish Hospital; complains of scurvy, with pains in the legs and varicose left internal saphenus vein below the knee. On examination, a deep, indolent ulcer was discovered also in connexion with this; straps of adhesive plaster were applied, $1\frac{1}{2}$ inches broad, and of sufficient length to encircle the limb, which was covered to an inch and a half above the ulcer and the same below, and over this a calico bandage was placed from the toes to the knee; he was discharged, August 9, to the Tent Hospital, convalescent.

Case VII. Hamza Abdullah, 6th regiment, 4th battalion, for scurvy and intermittent attacks, admitted July 9, discharged convalescing, August 7.

Case VIII. Mahmoud Ibrahim admitted into ward No. 3, July 9, suffering from scurvy, with diarrhœa and bronchitis; died on July 11.

Case IX. Mahmet Ahmet, of the 7th regiment, 1st battalion, admitted July 9, with diarrhœa; died 15th, at 2 P.M.

Case X. Fehret Ahmet admitted, July 10, to ward 3, suffering from scurvy, diarrhœa, and fever, with latent pneumonia; died three days after admission.

Case XI. Mahmet Becker, of the 6th regiment, had been at Sebastopol six months, where he was taken ill of diarrhœa, was sent to Eupatoria to the hospital, where he was three months sick with scurvy, diarrhœa, and intermittent fever; admitted July 9, suffering from the same maladies; discharged to the Tent Hospital, convalescent, August 7.

Case XII. Aly Saleyman, suffering from diarrhœa, scurvy, and ascites; admitted July 9, from Eupatoria, where he had been ill during two months. On the 18th abdominal effusion showed itself distinctly; much difficulty in passing some bloody urine.

28th. The dropsy was much diminished, having on the previous days passed much watery fluid by stool.

August 10th. Discharged to the Tent Hospital, convalescent.

Case XIII. Emmin Nesir, admitted July 8, from the barracks of the 3rd regiment and 1st battalion; had been ill five months with scurvy and ulcers on the calves of the legs; the ulcer of the right leg was about one inch in diameter, and in the centre half an inch deep; that on the left leg smaller in diameter, and less indolent in character; each, however, exhibited large, flabby, indolent granulations.

26th. Having rapidly improved, and the ulcers having nearly filled up, he was discharged to the Tent Hospital.

Case XIV. Mustapha Mehmet, of the 6th regiment, 4th battalion, scurvy, with abscess over the upper portion of the sternum, and slight diarrhœa; admitted on the 9th July; died on the 18th.

Case XV. Saleyman Mustapha, 6th regiment, 4th battalion, suffering from scurvy; admitted July 9, discharged August 7, to the Tent Hospital.

We thus had to treat patients suffering from scorbutic diathesis, with tendency to diarrhœa and dysentery, combined with great nervous prostration, intermittent tendency, and an unhealthy condition of the skin.

Our dietetic treatment, which, although of very great importance, yet, owing to the bad arrangements, gave us much difficulty, was as follows:—At first the patient's food was supplied

at half-past 7 in the morning, and at 5 in the afternoon; however, by great perseverance, we were able to give them a meal also at mid-day.

In all the cases admitted, vegetable diet at the onset produced evil effects; lemon-juice, unless combined with an alkali, acted prejudicially; fruit and green vegetables produced the same effect, the latter less when cooked; nor should we be surprised to find it the case when we consider that many of our patients had for months been deprived of any sort of vegetable diet in a fresh state, and that for several days prior to admission they had taken scarcely any food whatever; in fact, they were in a state often of starvation on admission.

Rice, bread, and mutton being the staple articles of food of the Turkish soldier at Eupatoria, they were chosen as best suited to build up his constitution for the receiving of more appropriate dietetics. Hence, weak broths, made of rice and mutton, with bread soaked in it, were given in the morning, and "pilaff" at noon; the latter is a composition of well-cooked rice with butter, and is most grateful to an eastern stomach; or "mahalebby," a composition of flour and grease or butter, with milk. As the bowels became secure, boiled vegetables were added to the soup; lemon-juice and lime-juice were given as lemonade or "imperial," a drink composed of bitartrate of potash, made sweet with sugar, and flavoured with lemon-peel. However, it was found that whenever these drinks were administered in the early residence of the patients, a higher mortality was the result; and whenever the sick patients obtained, as they did, fruit from the vendors in passing from the pier to the barracks or hospital, a larger mortality took place than among those who refrained or who were prevented indulging in such.

As convalescence progressed, salads were ordered with much advantage.

In speaking of the peculiarity of the medical treatment as tending to the great amount of scurvy at Eupatoria, we of course include the dietetic and hygienic arrangements, which were extremely bad, and I feel certain that no one who has had much experience in hospital management can doubt the absolute necessity of pure air being insured in an hospital where the health and lives of the patients are considered of the primary import; but in order that these shall be properly and efficiently carried out, the medical officer in charge must hold a similar position to the captain of a large vessel, with this exception, that he must have also a knowledge of medical treatment.

The condition of an hospital which will please the eye of a casual observer in the middle of the day, when every part is cleanly and in order, is not sufficient; the regular observer notices accurately the supply of clean linen, of bed-pans, movable water-closets, means for bathing patients, proper and efficient supply of water, the cooking of the food, the regularity in all parts; and every one who has patiently observed knows full well that the influence of these different agencies determines often the effect of the various remedies.

Of the therapeutical agents used with advantage, we may mention the citrate of potash, nitrate of potash, bitartrate of potash, and chlorate of potash. The citrate of potash produced the most beneficial effects, and was often sufficient to bring about rapid recovery. When pains of the extremities existed, preventing sleep, Dover's powder, morphia, or extract of henbane, were administered at bed-time; in a few days, the worst symptoms having disappeared, the condition of the gums was relieved by an alum gargle, or, in the worst cases, by painting them with nitrate of silver.

On an assurance that no symptoms of diarrhœa would take place, boiled vegetables, &c., were ordered. When constipation took place, the tartrate and bitartrate of potash, combined with an aromatic, acted well. In some instances, where effusion appeared to arise from inactivity of the kidneys, the combination of nitrate of potash acted beneficially, and when the effusion into the areolar tissue around the knee-joint assumed a chronic form, iodide of potassium, combined with infusion of quassia, acted well. When patients were admitted in a state almost amounting to collapse, they had a mixture composed of a drachm of chlorate of potash, an ounce of syrup, and five ounces of distilled water, a fourth or fifth of which was administered before removal from the bath; or one composed of one ounce of compound spirits of ether, half an ounce of aromatic spirits of ammonia, and five ounces of camphor mixture, of which two or three table-spoonfuls were given as a dose.

Diarrhœa.—In all complications of scurvy with diarrhœa, the dietetic treatment from the commencement was of great importance, the administration of milk and rice with sugar, as containing the principal substances of which the blood was in need, and, by their emollient properties producing no irritation upon the intestinal canal. To try the effect of various medicines and food upon patients on admission, we took 25 patients suffering from scurvy, and some few of them had diarrhœa in a mild state. We took other 25 cases, the same in every particular to the first 25 patients; a good supply of lemon-juice

was ordered daily with salad and vinegar. Of these 23 per cent. died within seven days after admission, whilst the other cases, treated as before described, but 8 per cent. died; whilst of the former cases the length of time for becoming convalescent was increased 25 per cent.

The ordinary medicinal remedies on admission were three to five grains of Dover's powder every three hours, or, where the diarrhœa was very frequent, after each relaxed motion at the same time was administered chlorate of potash, with decoction of cinchona or nitrate of potash, when it was necessary to stimulate the kidneys at the same time. The compound powder of kino, of the London Pharmacopœia, was also given with much advantage. When pain on pressure, or even colic, was present, the application of turpentine on hot flannels proved highly beneficial, or mustard cataplasms. In some instances spongio-piline with hot water afforded great relief. This substance must be considered a most valuable introduction in the cleanly treatment of medical cases. It does away entirely, to my mind, with the dirty application of cataplasms, whose chief benefit arises, I firmly believe, from the heat and moisture which they convey to the affected part.

As the symptoms of diarrhœa subsided, quina or quinoidine was given in combination with nitric acid, or, where congestion of the liver was of marked importance, nitro-muriatic acid was rather preferred, with or without Battley's solution of opium.

The dysentery was treated by much the same method as the diarrhœa, with this exception, that whenever dysenteric symptoms made their appearance, a hot cataplasm of turpentine was applied over the whole abdomen, and ten grains of Dover's powder immediately given, taking especial care that the patient should not be allowed to leave his room: in several cases chlorate of potash was given in addition.

In many cases distinct enlargement of the liver and spleen was observed, and the application externally of tincture of iodine was often of much benefit over the region of these viscera.

In the treatment of the cases of bronchitis and pneumonia, our attention was directed to counter-irritation in the thoracic region by tincture of iodine, the tartar-emetic ointment and blisters not being admissible, from the tendency to the formation of foul ulcers. We had also recourse to the internal administration of diffusible stimulants and chlorate of potash, to assist in purifying the poisoned blood; and we endeavoured, by means of citrate of ammonia combined with ipecacuanha, to

produce increased secretion to the skin. Cupping, bleeding, leeching, calomel, antimony, were in each case contra-indicated by the feeble pulse, the anxious countenance, the scurvy gums, and diarrhœa. Cough, when it existed, was relieved by henbane, hemlock, and even paregoric.

(*To be continued.*)

Art. XX.—*On the Natural Constants of the Healthy Urine in Man.* By the Rev. Samuel Haughton, F.R.S., Fellow of Trinity College, Dublin.

[We publish the following Table, in anticipation of Mr. Haughton's paper on the "Natural Constants of the Healthy Urine in Man," the first part of which will appear in our next Number.—Ed.]

Table *derived from Experiment, showing the relation between the Specific Gravity of Healthy Urine, and the Quantity of Urea contained in it.*

Specific Gravity of Urine.	Grains of Urea per oz. of Urine.	Specific Gravity of Urine.	Grains of Urea per oz. of Urine.
1010·0	. . .	1020·0	12·2
1010·5	. . .	1020·5	12·4
1011·0	. . .	1021·0	12·6
1011·5	. . .	1021·5	12·9
1012·0	. . .	1022·0	13·1
1012·5	5·0	1022·5	13·3
1013·0	5·7	1023·0	13·4
1013·5	6·6	1023·5	13·5
1014·0	7·2	1024·0	13·7
1014·5	7·8	1024·5	13·8
1015·0	8·4	1025·0	13·9
1015·5	8·8	1025·5	13·95
1016·0	9·2	1026·0	14·0
1016·5	9·6	1026·5	14·0
1017·0	10·0	1027·0	14·0
1017·5	10·4	1027·5	14·0
1018·0	10·9	1028·0	14·0
1018·5	11·2	1028·5	13·95
1019·0	11·5	1029·0	13·9
1019·5	11·9	1029·5	. . .

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Medical and Surgical History of the British Army which served in Turkey and the Crimea during the War against Russia. Blue Book, 2 vols. 4to. 1859. Presented to both Houses of Parliament by command of Her Majesty.

It is not our present purpose to enter upon a detailed analysis of the contents of these volumes; we shall, therefore, confine our remarks chiefly to the first volume, and to an account of the general hospitals, which have received no separate notice in this history of the medical transactions of the war.

The volume before us contains abstracts from the medical reports of each regiment of cavalry and infantry actually employed in the field, followed by a table of the admissions and deaths in the regimental hospitals, by months, while a separate column shows the deaths in the general hospitals, or elsewhere, with their causes, in so far as these were ascertained, during the whole period.

As these abstracts and tables constitute the groundwork on which the whole superstructure rests, it is to be regretted that similar returns were not given for the artillery and engineers, as we are thus left in some doubt as to the proportion of the ordnance corps dying in regimental and general hospitals respectively.

In the following statement, compiled from these regimental tables, we have included the Land Transport Corps, because many men of this corps died in the general hospitals. The first column shows the total deaths (exclusive of killed in action, 2755) in each arm of the service, and the second the number of these deaths which took place in the general hospitals and elsewhere:—

	Total Deaths.	In General Hospital and elsewhere.
Infantry, ...	15448	6447
Cavalry, ...	1054	377
Ordnance[a], ...	1447	578
Land Transport Corps,	477	119
Total, . .	18426	7521

From this statement it appears that 10,905 men died with their regiments; but 126 of these deaths (97th and Buffs) took place at the Piræus, leaving 10,779 as the actual deaths in Turkey and the Crimea.

No better proof can be offered of the arduous hospital duties devolving on the medical officers in the field; and when we add to these the duties in the trenches both night and day, with the exertions necessary to procure comforts for the sick, and the *desagrémens* of a winter encampment, we cannot but admire the fortitude and endurance of those officers.

Before being lost in amazement at the amount of this deplorable mortality, we must recollect that 4000 of these deaths were caused by cholera, and a very considerable number by wounds and accidents immediately fatal, all of which necessarily took place among the forces in the field.

The regimental abstracts and returns are exceedingly valuable to the etiologist, as showing that the rate of mortality differed greatly among regiments subjected apparently to the same privations, and performing similar laborious duties; and further, that this mortality did not always arise from the same diseases. However, in only five of the thirty-one batallions of infantry which landed at Old Fort was fever more fatal than dysentery and diarrhœa; in all the others the latter were the most mortal diseases, and in a few the proportion was from three to four-fold, excluding cholera.

As a general rule, those regiments most actively engaged in the duties of the siege during November, December, and January, suffered most; and the returns of the three battalions of Guards and the 63rd regiment show how suddenly the mortality abated when these corps were withdrawn from the front in February, 1855. It is only by an attentive consideration of all the circumstances, in the several cases, that we can hope to ascertain the true causes of that mortality, but such a task is far beyond our scope, so we shall content ourselves with a sin-

[a] The deaths in the Ordnance are taken from the General Returns, vol. ii., pp. 44 and 387.

gle contrast which exhibits the comparative effects of a winter siege, and of a residence in the foulest locality, combined with the risk of contagion, as causes of mortality.

The 89th regiment landed at Balaklava on the 19th of December, and marched to the front to enter upon the siege duties. It encamped upon a dry elevated spot, with excellent water at hand; but the rations were salt meat, biscuit, and rum, without firewood, which was difficult to procure, and the men were detailed for duty in the trenches in their usual clothing. Here "forty cases of cholera were presented between the 19th and 31st of the month, all of which proved fatal." In short, the 89th had lost 119 men by disease, exclusive of killed and wounded, before the 1st of May, 1855.

The 71st regiment, first division, landed at Balaklava on the 20th (18th?) of December, 1854, and for about ten days was encamped "close to the Turkish burial-ground." On the 27th, 417 men moved into Balaklava, taking possession of dilapidated houses. The rations were salt meat, biscuit, and rum, until after the 1st of January, when fresh meat, potatoes, and compressed vegetables were issued two or three times a week, and there is no complaint about firewood. When not on guard the men were employed in road-making, landing stores, and giving orderlies to the Balaklava hospital and to the transports conveying the sick to Scutari. The remainder of the regiment arrived on the 7th of February, and was first encamped, and afterwards hutted, three-quarters of a mile outside Balaklava, but the head-quarters continued in the town. In fine, this regiment, chiefly stationed in a locality said to have been dangerous to the health of the whole army, had lost twenty-seven men by disease, exclusive of killed and wounded, before the 1st of May, 1855. On the 3rd of May the regiment embarked for Kertch, re-landed on the 8th, and next day marched to the camp before Sebastopol, where it encamped, near a large burying ground, in wet weather. The camp was changed to drier ground in three days, but the men had to guard the trenches, and were only two nights in bed. It embarked again for Kertch on the 22nd of May, and by the end of this month had lost twenty-six men by disease.

These regiments were selected for this comparison because they landed about the same time, and their average strength during the four and a half months, to the 1st of May, only differed by seven men.

It appears by the table given above that 7521 deaths among men belonging to the several arms of the service took place in general hospitals or elsewhere, but 71 men who perished by

drowning, cold, suicide, and accidents, or were found dead, besides 22 men of the Land Transport Corps who died at Kertch, where there was no general hospital, and also 1311 who died on board the transports, must be deducted from that number, leaving 6117, belonging to the army in the field, to be divided among all the general hospitals. It is true the deaths in the Artillery and Engineers in the general hospitals have been computed at two-fifths of their total deaths; but any understatement, as regards the Ordnance, would be fully compensated by men dying in the hospitals of other regiments. For example: 14 men of other corps died in the 4th hospital at Gallipoli, and 23 French, civilians or prisoners, died in the camp hospital. As all the 345 deaths set down in the general return[a] as unknown are included, we are justified in assuming that these 6117 deaths comprise all men belonging to the army dying in general hospitals.

The returns from the various general hospitals show that this mortality was distributed as follows, viz.:—

General hospitals in the		Crimea, ...	738
,,	,,	Varna, ...	374
,,	,,	Abydos, ...	82
,,	,,	Smyrna, ...	154
,,	,,	Renkioi, ...	50
,,	,,	Scutari and Kululi, . .	4719
		Total, . .	6117

In the volumes before us no special notice has been taken of the general hospitals, and we cannot hope to supply so serious a deficiency in the medical history of the war, but, having collected from the returns the total deaths out of each regimental hospital, and shown their distribution by means of the general hospital returns, we may cast a passing glance on the latter establishments, and compare the mortality from wounds, and one or two of the principal diseases in the Scutari hospitals, with that in the general return for the army at the same periods.

The general hospital in Balaklava was opened in October, 1854, for the reception of soldiers, sailors, and employés of all kinds. It appears at times to have been overcrowded, and from the previous habits of its inmates was difficult to manage, but early in 1855 it was got into order. The site of the town, it is said, could "not be considered as naturally healthy," and the margin of the harbour nearest the town soon became "a

[a] Vol. ii. p. 253.

mass of organic matter, consisting of filth, stable manure, the bellies and offal of slaughtered animals thrown overboard, amongst which had been embedded numerous carcases of dead animals[a], producing the most horrible smells;" and the hospital latrines were in bad order. But there had been frequent lime-washing, and the ventilation was good if the external atmosphere was impure. Fever was prevalent here from December to March, and the mortality averaged 10·7 per cent. for this period, and 7·7 per cent. on the whole occupation, a trifle lower than at Renkioi. Cholera caused nearly one-third of the total deaths in this hospital, yet the average mortality on the admissions, from all diseases, was 7·7 per cent.

The Castle, Camp, and St. George's Hospitals, opened in March, April, and July, soon became model temporary hospitals, and the rate of mortality in all three averaged 7·2 per cent.; but when we take them singly, their rates of mortality were widely separated: that of St. George, for convalescents, being 3 per cent.; that of the Castle, 3·7 per cent.; and that of the Camp Hospital, 18·9 per cent.

As no forcible objection has been raised either to the site or construction of any one of the three, we must seek the causes of this remarkable difference elsewhere. When we deduct the admissions and deaths from gunshot wounds from the Castle and Camp returns, we at once reduce the difference in their rates of mortality from 15·2 to 5·1 per cent., a convincing proof that wounds and diseases of the gravest nature were humanely taken to the nearest hospital.

In the hospital at Abydos, opened in December, 1854, no death took place after June, 1855, and in this, perhaps, "the least adapted for hospital purposes of all the buildings in the British occupation"[b], the average rate of mortality was only 10 per cent.

The hospital at Smyrna received 1498 patients from the Crimea, after the 9th of February, 1855, though the total in the return is 1887; and the total deaths were 154.

The hospital at Renkioi received the first patients from the Crimea on the 2nd of October, 1855, and the last on the 10th of February, 1856, in all, 1122; but the total admissions were 1330, and the total deaths 50, of which 9 were from intermittent fever, in 38 admissions.

The hospitals in Scutari were opened in June, 1854, and before the end of August had admitted 1257 patients, among whom were a few cases of cholera from the Fourth Division,

[a] Report of the Eastern Sanitary Commission, p. 88. [b] Ibid., p. 60.

detained on board the transports in Beicos Bay to avoid the sickness in Bulgaria, yet the mortality during these three months was only 3 per cent.

A new era, however, commenced in September, and between the 21st and 30th, 3166 sick and wounded arrived from the Crimea. To meet this sudden emergency, we learn from the Report of the Sebastopol Committee that Dr. Menzies had under his orders twenty-two medical officers, an aged apothecary, and a still more aged and infirm purveyor. He detained medical officers sent down from the Crimea, he accepted aid proffered by the navy, and ere long he was begging bedding and furniture from the Turks.

After a brief remission in October, the torrent of sick resumed its flow; bringing down, in the end of the month, the wounded from Balaklava, to be immediately followed by the far more numerous wounded from Inkerman in November.

Many a surgeon of infantry in the Crimea dates the breakdown in the health of his corps from the disastrous storm of the 14th of November, and from that time the influx of sick at Scutari was even more overwhelming than the previous influx of wounded had been, all sent away from dire necessity, in consequence of the insecurity of the position before Sebastopol. Thus the Scutari hospitals received all the wounded from the fields of Alma, Balaklava, and Inkerman, and all the sick who survived the voyage, until the small hospitals at Abydos and Kululi were opened, about the middle of December, 1854. But there was no respite from the appalling inundation until February, when a decided improvement took place in the health of the army; and the hospital opened on the 10th, at Smyrna, gave some relief.

That under a combination of circumstances, almost without a parallel, the wants at Scutari must have been great and pressing, no reasonable man can doubt, but aid of all kinds had been coming in from all quarters, and the real difficulties had been overcome in February.

In the mean time the hospital returns had got into inextricable confusion; and we see[a] no less than 2957 admissions, and 411 deaths set down as unknown, the latest in February.

From this chaos we appealed to the regimental returns as combining the information of the orderly room, the paymaster's office, and the hospital, and by subtracting the deaths in the other general hospitals, nearly all established after the pressure, and those on board the transports, where the military and

[a] Table I, vol. ii., p. 481.

medical returns were checked by the ship's returns, leaving all still unaccounted for against Scutari and Kululi, it appears that the maximum deaths, in the various arms of the service included in our table, could not possibly have exceeded 4719 in these hospitals, but we are unable to fix the periods at which those deaths took place in a great majority of the corps.

The returns of the various transports show that 29,874 sick and wounded officers and men were embarked from the Crimea, and 1311 died on board ship (all but 50 before April, 1855), and 3282 were landed at other hospitals; 25,301 must have arrived at Scutari, two-thirds of them before April, 1855. Had all the deaths among the men belonging to the army (in Scutari and Kululi) occurred among those sent down from the Crimea, the rate of mortality must have been 18·2 per cent., but we know that 38 men had died at Scutari before the Crimean expedition, and others, no doubt, were landed to die there from transports on the outward voyage.

If we take the principal diseases which caused this mortality, and compare the death rates in the hospitals on the Bosphorus[a] with those in the General Return for the Army[b], we find that the rate from fevers at Scutari was 10 per cent., and for the army 11 per cent. during the whole war. For the six months from October, 1854, to March, 1855, when Scutari was said to be at its worst, the rate there was 19·4 per cent., and in the army 24·1 per cent.; and for the single month of February these rates were 30·8 and 38·8 respectively.

In each instance the rate of mortality has been calculated on the *admissions only*, for the periods specified, and therefore the variations are considerable from one period to another. In February, however, in each 100 deaths (excluding the unknown) 20·9 were from fever at Scutari, and in the army 27·4; so that fever was actually less fatal at Scutari than in the army in general, though these deaths were at their maximum in both in this month.

When we come to the 2962 gunshot wounds admitted at Scutari between the 21st of September and 31st of March, the rate of mortality was 10·3 per cent.; whereas in the general return for the army it was 17 per cent., but the latter includes all wounds necessarily and speedily mortal, none of which would reach Scutari.

Although the wounded were so numerous, there were only 9 cases and 4 deaths from erysipelas during the six winter months, and 15 deaths from gangrene—no great number, when we con-

[a] Table I, vol. ii., p. 481. [b] Table A, vol. ii., p. 253.

sider that the sufferers had been subjected to the hardships of a sea voyage in ill-prepared transports, with attendants who were likely to have suffered from sea-sickness.

What were the diseases, then, which gave to Scutari its notorious celebrity for unexampled mortality? The answer is clear and simple, namely, frost-bite, dysentery, and diarrhœa, besides gunshot wounds.

The mortality at Scutari from frost-bite was 34·5 per cent. on the admissions, and in the army 19·3 per cent.

During the six months from October to March inclusive, 2320 patients died at Scutari and Kululi from dysentery and diarrhœa, the mortality amounting to 37 per cent. on the admissions; whereas in the army for the same period it was 22·9 per cent. As nearly all the cases came from the Crimea, about five-sixths were on admission suffering from the chronic forms of these diseases,—a fact which precludes the possibility of their having originated at Scutari, whatever may have been the sanitary defects of these hospitals,—it would be a waste of time to set down the rates of mortality on the admissions by months, or to calculate these rates on the supposition that half the admissions, discharges, and deaths, can represent the "cases treated" in an hospital where some thousands of sick remain over from month to month. Such methods of calculating the rates of mortality being of necessity more dependent on the numbers admitted and discharged than on the lesser number dying in a particular time, too often displace the maximum death-rate, though both *must hit upon the truth* when an hospital is closed empty.

However, in each 100 deaths at Scutari (excluding unknown) in January, 1855, nearly 70 were from bowel complaints, and in February, 51. The greatest number of deaths in the army in any month during the war also occurred in January, very nearly two-thirds of which were caused by dysentery and diarrhœa.

The mortality from pulmonary diseases and rheumatism was also rather greater at Scutari than in the army, in proportion to the admissions, but both contributed only 8 to each 100 deaths, and the unexampled mortality at Scutari could not have arisen from these diseases.

When we revert to the returns, we find that in the army the admissions with fever were more numerous in October than in November, but they suddenly rose in December, and continued to increase until March, though the mortality had attained its maximum in February. In the hospitals on the Bosphorus, fever began to increase in November, and rose rapidly until

January, but more slowly until March, when the admissions were most numerous, and here it had also attained its highest rate of mortality in February.

The admissions with dysentery and diarrhœa were most numerous in the army, and also at Scutari, in December, 1854; and the mortality in both places was greatest in January, 1855, when these diseases caused 2031 out of the 3168 deaths in the army during this month.

The heavy mortality at Scutari during the winter of 1854–5 has been too confidently attributed to the sanitary defects in these hospitals, and its subsequent diminution to their removal. But we have seen that the mortality averaged only 3 per cent. during the first three months these hospitals were occupied. The improvement in the health of the army before Sebastopol in February, 1855, has been acknowledged by all; and in consequence of the hospital at Smyrna being opened in this month, six transports carrying 931 sick were sent there, after landing the worst cases at Scutari. There was a great diminution in the admissions, therefore, at Scutari, while the mortality was adventitiously augmented; but we learn from Lord William Paulet's letter to Lord Panmure (25th April, 1855), that "in January last the number of deaths was 1480, in February, 1254, and in March, 424," so that the mortality was decreasing too rapidly to be reasonably ascribed to sanitary improvements begun on the 17th of March.

On the establishment of the Castle and Camp general hospitals in the Crimea in March and April, other efficient causes came into operation, for the wounded sent down to Scutari were convalescent before they embarked, and of the 315 deaths from gunshot wounds at the latter, only 7 took place after April, 1855.

Of 280 deaths at Scutari, from frost-bite, only 7 occurred after April, 1855.

If the mortality from dysentery and diarrhœa at Scutari fell from 2220 during the six months ending with March, 1855, to 276 in the subsequent period, it also fell in the army from 5151 in the same six months to 663 during the remainder of the war.

The deaths from fever at Scutari during the six months of the first winter were 644, and afterwards 189; whereas in the army generally they were 2048, and 1037 respectively, proving that Scutari still held out the same superior chance of recovery as at the most sickly period.

We do not mean to deny that sanitary defects existed at Scutari, which should never exist in any permanent hospitals,

but these must have been in a great measure removed, while *sanitary improvement was still in its infancy*, for Lord W. Paulet, writing to the Secretary for War on the 25th of April, 1855, says: "I may confidently assert, as regards the general condition of these hospitals, that they surpass in cleanliness and comfort any I have seen in England or elsewhere, and this opinion is corroborated by the various and enlightened individuals, both English and foreign, who have visited them."

Our medical brethren who laboured with such noble devotion in the Irish hospitals in 1847–8 are far better qualified than we are to decide how much of the mortality of that calamitous time was due to sanitary defects in these hospitals, and how much to the malignity of the then prevalent diseases? Their verdict will be a judgment against which there can be no appeal as regards Scutari in the winter of 1854–5.

That from February, 1855, watchful nursing and abundant comforts smoothed the rough path to the grave, and in some instances stayed the hand of death, we firmly believe. But that dysentery and diarrhœa, the causes of half the mortality at Scutari during the winter, having not only ceased to be fatal, but even frequent, at the source of supply in the Crimea, they should not likewise cease to be fatal and frequent in the hospitals on the Bosphorus, no experienced practitioner can for one moment doubt.

We accordingly see that, after the terrible destroyer had passed by, the mortality at Scutari returned almost to the same low rate as during the three months before his appearance, and it is with these three months alone that the results of sanitary improvement can with any justice be compared.

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1. *Om intagna Läkemedels afsöndring utur Organismen.* Af Dr. Sten Stenberg. Upsala: Wahlström och C., 1858. 8vo, pp. 88.

   On the Elimination of Internal Medicines from the System. By Dr. Sten Stenberg.

2. *Blick på Ethnologiens närvarande Ståndpunkt med afseende på Formen af Hufvudskålens Benstomme. Foredrag vid det skandinaviske Naturforskerselskaps 7de Mote i Christiania*, 1856. Af Andreas Retzius, Professor vid det Carolinska Institut i Stockholm. Christiania: Trykt hos Carl C. Werner och Comp, 1857. 8vo., pp. 43.

A Sketch of the Present State of Ethnology with reference to the Form of the Skull. An Address delivered at the Seventh Meeting of the Scandinavian Society of Naturalists at Christiania in 1856. By ANDREW RETZIUS, Professor in the Carolinean Institute in Stockholm.

3. *Berättelse om Undervisningen vid Kongl. Karolinska Medico-Kirurgiska-Institutet under Läsåret* 1857-58. Stockholm: P. A. Norstedt och Söner, 1858. 8vo, pp. 8.

Report on the Instruction delivered in the Royal Carolinean Medico-Chirurgical Institute, during the Session 1857-58.

4. *Om senaste Försöket att vanställa Ortopedién och hos Allmänheten inplanta Fördomar mot Gymnastiskt-Ortopediska Institutet.* Stockholm: Tryckt å Aftonbladets tryckeri. 1858. pp. 116.

On the latest Attempt to disparage Orthopedics, and to prejudice the public against the Gymnastic Orthopedic Institution.

AFTER some preliminary observations, Dr. Stenberg remarks that in the investigation of the elimination of non-volatile medicines from the system, it is in most cases only necessary to direct attention to the urine, the solid excrements, and the perspiration; and that in quantitative examinations it is sufficient to test the first two as to the amount of the substance in question which they contain, whence the quantity passing off through the skin can subsequently be indirectly deduced; further, that the saliva and the milk, when they occur as excretions, must be also examined; and, lastly, that in the case of volatile remedies, not only the above excretions, but also that from the lungs, must be taken into consideration.

But even the merely qualitative examination of the excretions is capable of affording us information of much value, in both a theoretical and a practical point of view: thus it may show us whether a medicine which has been taken passes unchanged out of the body, or whether it undergoes decomposition in the system, and whether one or more of the products of its decomposition may be recovered in the excretions, and their nature determined; further, whether a medicine is, at a certain period, separated from the system or not, and, in the former case, with what excretion or excretions it is principally eliminated; and, lastly, what length of time elapses after the ingestion of a remedy, before it shows itself in the excretions, and how long it continues to manifest itself in the latter.

By such investigations we arrive at a knowledge of the chemical powers of the constitution. Thus Wöhler ascertained that vegetable acids, when combined with alkalies in the form of neutral salts, are converted in the system into carbonic acid, but that, when not so combined, they undergo no such change. Ure, Heller, and others, demonstrated the metamorphosis of benzoic into hippuric acid in the organism. In the former case the oxidation of the carbon and hydrogen of the acids, forming carbonic acid, which combines with the alkali to constitute a carbonate and water, is so energetic, as to render the urine alkaline in from half an hour to two hours after the ingestion of the salt, or within a few minutes, if the latter be introduced directly into the mass of the blood. Hence the advantage of administering such salts in cases in which urinary deposits result from an excessive secretion of acid, is at once apparent.

The author considers medicines, in reference to their elimination from the system, under two heads: those of inorganic and those of organic origin. The substances treated of are, however, so numerous that the volume scarcely admits of analysis; but we may observe that Dr. Stenberg has, with great industry, brought into the form of an useful compendium the results of the labours of the distinguished investigators in the several countries of Europe who have written on the subject of his work.

2. In the second work on our list the distinguished author publishes numerous facts which the lapse of time had brought before him, from various quarters, in confirmation of the views he had advanced, twelve and fourteen years previously, at meetings of the Scandinavian Society of Naturalists. He had then shown that the majority of the people of the west of Europe were dolichocephalous, while the brachicephalous was the prevailing form throughout the great extent of the eastern portion of the Continent.

Since the date of his former communication, Professor Retzius had an opportunity of examining a considerable number of individuals, descended from Norman families in France and England. These persons had, without exception, preserved the oval shape of the skull, which belongs to the genuine Normans in Norway.

The same form was found in hundreds of Swedish skulls, examined both in old churchyards and in the dissecting-room.

The Germanic dolichocephalic form was also found well

marked in Copenhagen, both in a number of skulls in the museums of that city, and in the heads of a large number of Danes. The same shape prevails in Holland and Belgium.

"In the course of a journey through Great Britain in 1855, I again had an opportunity of convincing myself of the general prevalencc of the dolichocephalic form, both in England and Wales, and in Ireland and Scotland. The majority of the latter dolichocephalous individuals are dark-haired, and are probably Celts."

The author points out that "among ancient statues, Apollo, Venus, and several of the noblest characters, have the dolichocephalic form; while others, on the contrary, as Jupiter and Hercules, exhibit the brachicephalic; probably owing to difference of race in the individuals whom the artist chose as models."

A curious fact connected with this subject is, that "all the people of Africa are dolichocephalous. This circumstance, to which I have already, on several occasions, directed attention, and which, so far as I am aware, has not been disputed by any one, is quite peculiar to this part of the world. Europe, Asia, the South Sea Islands, and America, exhibit races of both forms. Europe, and particularly Asia, possess a great preponderance of brachicephalic population. The South Sea Islands have, I believe, both forms in about equal number, but with a marked preponderance in favour of the brachicephalic; Africa, so far as is yet known, is without a trace of brachicephalic population."

The foregoing may suffice to show how much interest Professor Retzius imparts to what has often been considered a *dry* subject; a subject, however, which the investigations of this eminent physiologist, and those of other modern labourers in the same field, have proved to be quite the reverse, at least in one sense of the term.

3. The Report on the Instruction delivered in the Royal Carolinean Medico-Chirurgical Institute, during the session 1857-58, contains some interesting information. It appears that the number of medical students at the Institute during the above-mentioned period was 122. The subjects of the lectures of each Professor, with the number of pupils attending each class, are stated. The additions to the library and museum are enumerated. Among the donors to the former are, His Majesty the King, the College of Surgeons of England, the Pathological Society of London, the Universities of Christiania and Berlin, &c.

4. The pamphlet whose title stands last in the heading of this article appears to be a reprint of a newspaper controversy, into the subject of which we have no desire to enter.

General Debility and Defective Nutrition: their Causes, Consequences, and Treatment. By Alfred Smee, F. R. S. London: Churchill. 1859. 16mo, pp. 98.

Debility—what an expressive, comprehensive term! what a world of meaning is there! Debility! which of us is there that has not at times suffered from it; and that has not repeatedly in his practice been called on to treat it?—debility not arising as the result of some special disease, but being in itself the *fons et origo mali*. Which of us is not familiar with the wretchedness, the malaise, the incapacity for the ordinary pursuits of life, the apparently unaccountable position of the patient labouring under its effects, and occasionally his almost hopeless condition,—hopeless, from the abortive results that have hitherto attended the treatment to which he has been subjected—abortive, because no rational cause has been assigned for his symptoms.

These, and many other similar reflections, were aroused in our mind by the perusal of the work, the title of which heads this article—a work springing from the pen of a gentleman already deservedly occupying a high position amongst his professional brethren for the very scientific character of his previous writings, and for which we are indebted to the fact of his having been selected to deliver the Oration of this year before the Hunterian Society, for the subject of which he chose the consideration of the phenomena presented by general debility. That the subject should be treated in a more cursory way than perhaps our author would have wished, is but to be expected from the circumstances under which the observations were delivered; in an ordinary oration it is scarcely to be anticipated that full justice could be rendered to so important and extensive a subject. Did Mr. Smee merit no higher meed of praise at our hands than that of having drawn the attention of the profession in a marked manner to this important lesion, he still would have placed his professional brethren under an additional obligation to him; but that he has done more, far more, we are free to confess, and our only object in making this remark is to induce him at some future date to give us the results of his experience in a more extended form.

Mr. Smee's work is divided into six chapters and an appen-

dix; and we shall now, without any further preface, venture to draw the attention of our readers to some of the many important topics contained in each of them.

The first chapter opens with some well-put analogies between the phenomena of ordinary combustion and those of human life, after which are enumerated the elements which enter into the composition of the food of man; and these are again grouped into four classes; after which follow some most important observations as to the value of deciding, as accurately as the present state of our knowledge will admit of, the requisite amount of those elements that should be ingested, and their equivalent in food. To assist in the determination of this question, a knowledge of the amount of eliminated matter becomes necessary; and with this view, Valentin and Bernard's statements on these points are quoted; and the author alludes to some experiments conducted by himself on the dead body, to point out the way in which different fluids are transmitted from the bloodvessels to various tissues of the body, with the view to their reparation—experiments that would tend, in some measure, to support the physiological views formerly entertained by Descartes, Leibnitz, and Quesney. The value of sleep, and the important part played by the nervous system, are alluded to, and the chapter concludes with the following passage:—

"We thus find, by studying man through the medium of physical science, that the medical practitioner obtains four bases for the practical estimation and treatment of disease. 1st. The limits of variation of food required for daily sustenance. 2nd. The limits of variation of the egesta which must be daily removed. 3rd. The limits of variation of sleep. 4th. The limits of variation of nervous power, heat, and muscular force which can daily be produced. A study of these gives to the mind fixed points for estimation and action; for whenever any deviation occurs, it is as important for the medical man to observe and determine its value, as though the engineer detected any such deviation in the burning of his fire, or in the performance of his mechanism."

In the second chapter the author gives a brief summary of the varieties and symptoms of debility, amongst the titles of which he enumerates incapacity for exercise, failure of the faculties of sensation, incapacity for thought, inability to take sufficient sleep, capricious appetite, and, even where sufficient food is taken, a failure in the power of nutrition, as evidenced by wasting of the muscular or adipose tissues, and specific affections of the cornea, teeth, &c. The state of the heart and pulse are also alluded to, as furnishing us with valuable indications to assist our diagnosis. Passing on from these, Mr. Smee

occupies his third chapter with remarks on the causes of debility, and these he reduces to seven heads; but here we think he had better be allowed to speak for himself.

"As manifold are the conditions of vigour and health, so complex are the causes of debility and want of strength; but they may be classed generally under seven great heads. 1. Causes emanating from irregularities of food. 2. Causes emanating from irregularities of the egesta. 3. Causes emanating from diseases. 4. Causes emanating from external influences. 5. Causes emanating from irregularities of rest and sleep. 6. Causes emanating from irregularities of the work performed. 7. Causes emanating from hereditary defect."

His remarks under each of these heads are both judicious and of practical value, but in some few instances appear, in our judgment, to be of too sweeping a nature—for instance, in speaking of the effects of intemperate habits, he expresses himself in the following terms:—

"It cannot be too widely known through the length and breadth of the land, that though, during the last few years, the most severe competition has taken place between different life assurance companies for business, not one has dared to insure intemperate lives, or lives which have been intemperate, at any increased rate. No reasonable rate meets the case. It is in vain that the drunkard returns to propriety, he can never altogether erase the mischief; and although much may be done by great perseverance and skill, he never can altogether bring himself into a healthy state, or be regarded as a thoroughly healthy life. The frame of the drunkard is debilitated throughout, and he sinks by pneumonia, disease of the liver, or other malady depending upon debility, which cuts off his career prematurely. Insurance companies abhor the drunkard, as a risk far too great and uncertain to be estimated and safely considered. If the career of a drunkard be watched, it is astonishing how soon he passes away, as if the voice of nature exclaimed, 'Cut it down! why cumbers it the ground!'"

Now, whilst agreeing with him in his disapproval of excessive indulgence in what are popularly, but most inappropriately, termed "the pleasures of the table," and acknowledging that they are anything but conducive to longevity, we still must question the truth of his assertion that—"It is in vain that the drunkard returns to propriety, he can never altogether erase the mischief . . . . he can never bring himself into a healthy state, or be regarded as a thoroughly healthy life." We have seen too many instances to the contrary, and could point out many excellent examples of the results of the Rev. Mr. Mathew's la-

bours in this respect which would, we feel convinced, carry assurance to Mr. Smee's mind that on this point our views are correct. We have very extensive opportunities of becoming familiar with the habits of the lower orders in this city, and can bear testimony to the fact that many most intemperate characters have reformed, have led, and continue to lead, a most exemplary, sober life; and, what is more germane to the point, that their health is of such a nature as to entitle them to be ranked amongst what, in assurance parlance, is termed "eligible lives." Had Mr. Smee's remarks only referred to that class of patients who have suffered from delirium tremens, or delirium cum tremore, or whatever may be the term to be applied to this disease,—we might have entirely concurred with him, for we are, from sad experience, convinced of the fleeting nature of such apparent reformations; but even in such cases we have seen a few instances that may be considered thorough and permanent reformations, that is, if an experience of some fifteen years' observation of such patients may be looked on as a satisfactory test. And here, perhaps, we may be permitted to state a conclusion to which our experience has irresistibly drawn us,—it is this, that people who confine their excesses to *after-dinner* potations rarely suffer from delirium tremens. We are acquainted with many members of the old school,—a school, happily, passing away from amongst us,—who would not consider the business of the day brought to a satisfactory conclusion did they not go to bed drunk, or, at all events, in a state closely bordering on inebriation, being accustomed for some forty or fifty years of their lives to drink far beyond what is at present tolerated by the usages of society. These parties to whom we now allude never suffered from delirium tremens; *but they never drank before dinner;* up to that meal they were constitutionally abstemious. We recall to mind at this moment a gentleman of this class, who moved in the highest circles, and filled the highest positions in his native county; his family never remember him to have gone to bed sober, yet he never had an attack of delirium tremens, but he never drank anything before dinner. He is now an octogenarian; and some few years back, in consequence of a fall from his gig, he fractured his thigh, from which, however, he recovered with complete bony union, only, however, to resume his former habits, and enjoy a state of robust health, to which many of his very advanced age are complete strangers. The explanation of such an exception from what appears to be the curse attached to excessive indulgence in this vice is, we think,—that people of these habits are enabled to enjoy, at all

events, one, if not two, meals; they make a good dinner, if not a good breakfast, and thus the balance is re-established between the muscular and nervous systems. Be this, however, as it may, the fact stated is the result of no mean experience in such cases,—the explanation offered may be taken "quantum valeat."

Mr. Smee also alludes to the use of opium as being one of the causes of debility, but candidly acknowledges to not having experience of more than one case of the kind. That it is an occasional cause of debility, we can vouch for. A few such cases have come under our notice, and in all of them the symptoms of debility were well marked. In the cases to which we allude, we attributed the debility more to the depraved state of the appetite induced by the use of this drug, than to any other special noxious quality that it possessed—in other words, the debility that was present was more due to insufficient nutrition, resulting from an inadequate supply of food ingested, than to the toxic action of the opium. It has frequently been to us a curious and puzzling question, to what use the enormous quantities of opium imported into these countries is applied, for we are not inclined to believe that, in Ireland at all events, it is indulged in to any great extent; still, the quantities imported far exceed the supply required for legitimate consumption Its effect on longevity also is another problem that has yet to be solved.

The fourth chapter is devoted to the consideration of the consequences of debility; for these we must refer our readers to the work itself, as we are anxious to make a few remarks on that which succeeds it, and we are already extending beyond the limits which we originally assigned to ourselves, though not more than the importance of the subject demands at our hands.

The fifth chapter, however, which is devoted to the treatment of debility, is one that we cannot dispose of so summarily, as it contains most valuable suggestions, and some few remarks to which we shall venture to take exception. After some judicious observations on the imperative necessity that exists for careful nursing, Mr. Smee enters into detail as to the various diets that may be required to conduct our patient to convalescence; and here we must express our opinion that this most essential part of the treatment is but too frequently neglected by practitioners; many of them seem to think it entirely beneath their dignity to notice such, in their minds, trifling subjects, considering their patients' diet as being a question for their friends or the cook; but that such is not the case, we agree with Mr. Smee and every other practitioner who has

gained the confidence of the public,—in many cases, after all, the best and frequently the severest judges of the medical man's qualifications as a practitioner. Amongst the soups recommended we find turtle-soup; and to this we give in our adhesion, if it be made *clear*, free from those abominations too frequently added to give it colour and consistency. We regret that we cannot agree with Mr. Smee's estimate of the value of fish as an article of diet for the invalid; he seems to set a low value on it; whilst we, on the contrary, esteem it highly as a most nutritious and digestible article in the invalid's bill of fare. It is true that he has not the advantage of having at his command our inimitable Dublin Bay haddock; still, the delicate whiting, a *boiled* sole, a few oysters, &c. &c., will be found as valuable as they are agreeable in the treatment of cases where the appetite is admittedly so capricious. His remarks on the various wines are well worthy of perusal; and his observations on the various tonics employed in such cases are sound, and evidently the result of practical experience. With his remarks on the value of the different preparations of iron, we are perfectly prepared to agree—indeed, we have been long assured of the truth of the remark that the hematinic properties of the salts of iron are much better developed in those in which the iron constitutes the electro-positive portion of the salt than in those where it enters into the formation of the electro-negative ingredient.

In considering the physical treatment of debility, Mr. Smee has not overlooked the vast importance of taking a fertile source of defective nutrition into consideration—we allude to mental over-work. There is no more fruitful cause of dyspepsia, debility, and consequent defective nutrition, than the wear and tear of mental exertion; and it is astonishing how difficult we find it at times to induce a patient to accept the treatment essential for his relief; they are willing enough to swallow as many pills, draughts, mixtures, &c., as you may wish to order them; but to give their sadly overwrought brain a holiday, they will not hear of it. We have at this moment vivid in our recollection the case of one of the most leading barristers in this city, to which we are tempted now to refer for the purpose of recording a shrewd observation made by him. He had been suffering severely from debility caused by a great amount of over-work in his profession; and, in reply to our questions, acknowledged that he could not even take rest at night from thinking of the important cases intrusted to his conduct,—at his meals, going down to court, in court, in bed, they were always present to his mind. Amongst other things,

we advised horse-exercise, recommending him to select for the purpose some steady roadster. After a few weeks we saw him again, much improved, and were addressed thus:—"Doctor! your advice was very good in every respect save one—you told me to get a steady roadster: had I done so, I still would have been thinking of my business—no, I got a stumbling brute, and it was impossible that I could think of anything but *keeping him on his legs.*"

There is one passage in Mr. Smee's work that so effectually removes a slur frequently attempted to be cast on our noble profession, that we are tempted to extract it here for the benefit of such of our readers as may not have seen the book,—it is this :—

"Here we may pause to consider an unjust opprobrium which is cast by non-professional persons upon the medical profession, because two men of equal standing treat the same patient, under the same circumstances, by a totally opposite process. Now this apparent paradox never even had the charm, to my mind, of being either strange or singular; for, if regarded as a matter of algebraic formula, such a result is a natural consequence of the complex materials of which the body is formed. To illustrate this proposition, we will assume that the blood is composed of 3 A with 3 B and 3 C in the state of health, and has the power of adding to itself other portions with that relation. If, by disease, this relation is disturbed, and it then is composed of 3 A, 2 B, and 3 C, it follows that the normal relation may be re-established; first, by adding directly B; secondly, by subtracting A C; thirdly, by adding A B C with B in excess; fourthly, by adding A B C, and at the same time eliminating A C; fifthly, by adding A B, and excreting A; sixthly, by adding B C, and at the same time eliminating C. And, besides these multiple plans, we have the infinite combinations of treatment which would arise by introducing other elements, and using the compound plan of adding and eliminating."

We shall conclude our remarks by drawing attention to the appendix to the work, containing many tables of a most useful character, compiled from the most authentic sources; and, in taking our leave of Mr. Smee, we do so with the expression of our sincere opinion that he has discharged the duty he has undertaken in a most able manner, and that he has deserved well, not only of the profession, but of the public, for his masterly and lucid exposition of a troublesome and frequently a most dangerous affection.

An Enquiry into the Origin and Intimate Nature of Malaria. By THOMAS WILSON, ESQ. London: Renshaw. 8vo, pp. 136.

THERE are few subjects of more pressing interest and importance than the origin and intimate nature of malaria, especially if, with Mr. Wilson, we include under that title the causes of epidemic and endemic diseases, contagions, and miasms. The recent disasters that our armies suffered in the Crimea, and the contrast presented by the comparatively healthy state of the troops engaged in the suppression of the late rebellion in the more trying climate of India, add greatly both to the interest and importance of the subject, and along with the recent excitement in reference to the state of the Thames and the measures to be adopted for its purification, cannot fail to insure a ready welcome to any work devoted to its consideration.

It was, then, with anticipations of profit and pleasure that we entered on the perusal of this "Enquiry," but we have been most grievously disappointed, for a more indefinite, inconclusive, and altogether unsatisfactory production we have never met with. Of the special qualifications of the author for entering on such an "enquiry" we know nothing,—the title-page of the book affords no hint on the subject, as, beyond that he is an Esquire, the author gives no further account of himself; but it is not improbable that he means to describe himself when he speaks at page 115 of "the careful, observing, unprejudiced, practical men of the day," whose knowledge is occasionally in advance of that of "scientific chemists, as well as the professors of the conjectural art."

By this latter phrase our unprejudiced and practical Esquire means to designate the medical profession, of whom he loses no opportunity of speaking contemptuously. But, were it not that we consider it a psychological phenomenon, which we should not conceal from our readers, that a work abounding in such passages as the following has been sent to *us* to be reviewed, we should have allowed Mr. Wilson's petty insults to pass unnoticed, for we are satisfied that—

"Purity of motive and nobility of mind should never condescend
To prove its rights, and prate of wrongs, or evidence its worth to others;
And it should be small care to the high and happy conscience
What jealous friends, or envious foes, or common fools may judge.
Should the lion turn and rend every snarling jackal?
Or an eagle be stopt in his career to punish the petulance of sparrows?"

"Man has taken on himself the task of growing on one acre the natural produce of many; to feed twenty men instead of one from off the same extent of soil; to live in crowded cities, drawing their provisions from the surrounding country, producing nothing of themselves; to feed millions where nature intended but a few thousands should exist; he has taken the task on himself, and must carry it through, exposed to destruction at every false step, and at this moment exposed to the accusation by the medical authorities of England of deliberately rendering his farm-house, his homestead, his cottage, his mansion, his palace, a pest-house, the propagator, if not the absolute generator, of all the wide-spread plagues and pestilences, from that which desolated Athens in the time of Thucydides; laid waste the Roman world when Justinian reigned; smote England in the most unhappy and disgraceful period of past history[a]; and now, appearing amidst the tents of an obscure Arab tribe, ignorant of agriculture, living with their flocks and herds on the desert, happily remote from the influences of boards of health, officers of health, and registrars-general, once more threatens Europe; he is accused, in fact, of being the involuntary but certain slaughterer of his little babes. So says the eloquent Registrar-General of England in one of his sanitary reports; he belongs, it is true, and this must not be forgotten, to the theory-loving fraternity[b], a professor, in fact, of that conjectural art which heretofore despised statistics, and which now, by mistaking figures for facts, threatens to convert true science into a scheme of fictions anything but brilliant. To the Chadwicks, the Gavins, and a host of others still more potent, but who always act through the agency of *employées*, we owe the affair of Luton and of Birmingham, of the disgraceful condition of the Thames and of innumerable other localities; the deodorozing schemes of Leicester and Bristol, the intercepting scheme of the Thames, and the network of officers of health, amounting to 2600, now spread over England for the benefit of this tax-loving country."

The theory of the nature and mode of action of malaria, propounded by Mr. Wilson, *Esquire*, is, no doubt, too simple and too much in accordance with recorded facts to find acceptance with the professors of the conjectural art; still, it may be well to bring it under their notice. Be it known, then, that this practical man, whose knowledge is so much in advance of the age, has proved to his own satisfaction that there is a poison floating in the air, supported therein by the gaseous products of fermentation, and more especially by the ammonia now proved to exist everywhere in the atmosphere, the poison being the product of the slow combustion perpetually going on in the air, the earth, the waters, wherever,

[a] "Reign of Charles the Second."
[b] "He is, I believe, a physician and an M. D."

in fact, animal or vegetable organisms are to be decomposed. We call it, he says, putrefaction; it is, in truth, a ferment, and this, increased to the dangerous point by men's imprudence or ignorance, and quickened by epidemic influences, with whose nature we (including even the practical man aforesaid) are, of course, wholly unacquainted, being absorbed by the living tissues, excites that fermentation, that tendency to putrescence in the living blood to whose results medical men have given so many appellations. At times it is called ague, at times remittent fever, now it is small-pox, and now a fatal diphtherite. In ancient primitive times, when physicians were rare, says our author, such cases terminated in a crisis which might be calculated and determined, and which might prove fatal, or at once remove the disease. The fatal event must, however, in those halcyon days, have been rare, for is it not a fact, as is stated in a foot-note with remarkable historical accuracy, that there were no medical men in Rome for the first five centuries of her great career? which explains, as some have fancied, the astonishing number of armies which the republic found no difficulty in sending into the field.

Already have we devoted too much space to this worthless production, yet we cannot close without directing attention to the fact that Holland is the first country in the world, in civilization, philosophy, science, and agriculture; that Paley's Natural Theology is a mere translation of a Dutch work; and that the state of the Thames during last summer was but the result of a series of manœuvres, transparent enough to those who have carefully watched the movements of the last twenty years, as is abundantly shown by the following extract, which occurs as a foot-note:—

"It is right to observe that the unpleasant odour from the Thames, which during the month of June and part of July of the present year so disturbed the olfactory nerves of the Londoners, ceased at once so soon as the Bill for the purification of the Thames passed both Houses of Parliament. What connexion this had with the causes of the odour, and how these odours were so opportunely called forth and so quietly dismissed, I leave to be conjectured by the thoughtful of all classes. At this moment—August, 1858—during the most intense heat, the river is as sweet and fresh as a mountain stream, and has continued so ever since. Some are disposed to ascribe the cessation of the odours (for the stream is not in any way purified) to the throwing of quick-lime into the lower sections of the principal sewers; but if a remedy so simple as this was to be found in such a process, why was it not employed in June and July? It is only the unobserving who are surprised at such

things, and who have not happened to observe what follows the spreading of an ancient cesspool over the fields by the roadside, or pouring its contents into a comparatively small river. The Thames is a comparatively small river, and the effects of pouring into it, at a convenient and suitable time (the dog-days, Parliament sitting, &c.), the contents of half-a-dozen cesspools of fifty years' standing, undiluted and at once, would most assuredly give rise to results such as took place in London in June and July. The plot was a very nasty one—it might easily have been traced and the plotters detected: the sewer-makers, under the direction, no doubt, of the various boards, were very active in various quarters; and, not to mention other places, the main street of Hackney, for instance, for nearly a whole day, was by such means rendered quite unbearable."

Diseases of the Urinary Organs. A Compendium of their Diagnosis, Pathology, and Treatment. By William Wallace Morland, M. D. With Illustrations. Philadelphia: Blanchard & Lea. 1858. 8vo, pp. 579.

The person who undertakes to review a work such as that which is at present before us takes upon himself an arduous task, inasmuch as, being the subject of essays twice honoured with prizes, he not only will have *sub judice* the author of the work in question, but also the judges who awarded to him the prizes, and the competitors from whom he wrested them. In his preface Dr. Morland informs us that the present volume is mainly composed of the substance of two essays to which prizes were awarded by the Boylston Medical Committee, in the years 1855 and 1857, and *in limine* we may anticipate any further remarks that we may feel ourselves called upon to make on his present work by stating our conviction, that the competing essays must have been of a very high order of merit indeed, did they cause any hesitation to arise in the minds of his judges as to whether he was entitled to their award in his favour or not.

Having in this general way given our feeble meed of approval to Dr. Morland's production, we shall venture on a closer analysis of it; and, should we appear occasionally to exercise our office in a more censorious way, we trust that our motive shall not be misunderstood, as it is our opinion that more real kindness is shown in occasional censure than in unvarying, unqualified praise. And first, as to the arrangement he has thought proper to adopt.

Dr. Morland has divided his work into two parts and an appendix—this latter, by the way, like the postscript to a lady's letter, containing some of the most valuable parts of the entire

work. The first part is devoted to the consideration of the diagnosis of the diseases of which he treats, and is subdivided into six chapters. The second part is occupied with a consideration of their pathology and treatment, being also subdivided into six chapters. For our part we must state that we can see no advantage to be gained by thus separating the diagnosis from the pathology and treatment of a disease, but, on the contrary many disadvantages—disadvantages that will materially weigh against its becoming a generally favourite text-book with students. This having to look in one part of the work for the diagnosis, and in another part of the work for the pathology and treatment, entails an amount of inconvenience that will prove distasteful, and will, we fear, impair the circulation of an otherwise valuable work, and not entirely without reason, for the sequence of the observations is broken, and the force of the argument lost, by the present arrangement—an arrangement which, in any future edition of his work, we should be glad to see Dr. Morland alter.

The first chapter of the first part, which our readers will please to remember is devoted to diagnosis, is occupied with what Dr. Morland terms "general considerations,"—these general considerations comprising, first, an enumeration of the urinary organs; second, their anatomical relations; third, the occasional difficulty of diagnosis arising from anomalous positions of the organs. Now, whilst agreeing with Dr. Morland, that though a detailed anatomical description is unnecessary, nay, even uncalled-for in a work of this character, still, that a short account of the positions and relations of the organs is desirable,—we must protest against his anatomical sketch as being entirely too short to fulfil any useful purpose. What amount of useful information could be conveyed in a description of the anatomy, both structural and relative, of such important organs as the kidneys, ureters, bladder, and urethra, contained in about one page and a quarter of rather large-sized type? Or could the most epigrammatic, anatomical author be expected to describe the structural anatomy of the bladder in five lines, and its relative anatomy (on the importance of which he most justly dwells) in five more lines? The remarks on both the male and female urethra are disposed of in nine lines. Eighteen lines are devoted to the structure and relative anatomy of the kidneys and suprarenal capsules; whilst the same subject in relation to the ureters occupies but some ten lines. We are well aware that, estimating the value of literary, as a carpenter would manual labour, by measurement, is but a sorry specimen of the reviewer's ability, and perhaps we should do both ourselves and the

object we have in view better justice by giving an example of Dr. Morland's anatomical descriptions, than by any other means we have at our command. We, therefore, at hap-hazard shall submit for the consideration of our readers his description of the bladder, and allow it to speak for the rest.

"The urinary bladder is ovoidal in shape, membranous in structure, lying behind the ossa pubis and in front of the rectum. It is described as to its body, base, and neck; is held in place by several ligaments, of which the urachus, a fœtal relic, constitutes one. Its coats are three, the external, or serous, the muscular, and the mucous.

"Its *relations* are highly important. To the peritoneum, which invests a portion of it; to the rectum; to the vagina and uterus in the female; to the prostate gland in the male; by continuity its connexion with the urethra, in both sexes, particularly in the male, is never to be lost sight of. The vesiculæ seminales lie against the under-surface of its base."

The deficiencies that exist in this description are too glaring to require a word further of comment at our hands; indeed, it would only be abusing the patience of our readers more particularly to allude to them. One point, however, we have a right to expect, that, no matter how brief the description may be, it should be correct, and even this merit the present description does not possess,—all mention of its superior fundus being omitted, as also of the cellular coats. The reference made to the relation borne to it by the peritoneum is so superficial as to appear almost childish. However, we have said enough, we are satisfied, to convince Dr. Morland of the necessity that exists either for omitting altogether this portion of his work on any future occasion, or to treat of it in such a manner as to do it something like justice. It is true that, introductory to each organ, in the second part of his work, he enters more fully into these topics, but this fact renders the present meagre sketch the less necessary.

In the third section of this same chapter, some very interesting details are given us of the occasional difficulty of diagnosis that may arise from the anomalous position of certain of the organs. This portion of his subject is ably handled, and some most interesting cases selected from various sources are recorded. One of them we shall extract for the benefit of our readers, as it will forcibly impress them with the importance of a correct estimate of the nature of such cases—cases, by the way, not so unfrequent as our author seems to think.

"An instance is related by M. Brochin, in 'The Gazette des Hôpitaux,' Paris, July, 1854, of what is termed by M. Rayer, *luxa-*

tion du rein; others have called it *rein mobile.* This is one of the anomalous positions of the kidney, sometimes congenital, but doubtless often artificially produced, as mentioned above, by tight or ill-applied corsets. In this case, the patient had for a long time experienced pain in the abdomen, of a vague character, and of variable intensity, even momentarily changing, with other disagreeable sensations; and finally, she herself perceived a tumour, on palpation, in the left hypochondrium. Strongly pre-occupied with thinking how much of grave import her condition might imply, she consulted a physician, who rather increased her fears by prescribing strong resolutive means. After a long course of active and often painful treatment (moxas, blisters, &c.), with no good result, she came to the hospital-words of M. Nélaton, who, on attentive examination, recognised in the movable floating tumour (which could be nearly seized by the hand, could be brought forwards, and pushed backwards or upwards under the ribs) *the displaced kidney.*"

The chapter concludes with some forcibly put observations as to the importance of distinguishing between mere *functional* disturbance, arising from *transient* causes, and the commencement of disease. This is a most important consideration, and one that calls for serious attention on the part of the practitioner, especially the junior one. We perfectly agree with the author that, under such circumstances, many occasions may arise for the exercise of a sound discrimination, and that it is here that *tact* proves of such advantage to the medical man. This tact cannot be taught by books; it can only be acquired by experience, and a close examination and an exact appreciation of the relative value of each symptom. The rarer the gift, the more difficult it is of acquirement, the more valuable becomes its possession, and many is the instance in which, in the case of otherwise equally qualified practitioners, does it award the palm of success to one in preference to the other.

In the second chapter we have a striking instance of the progressive nature of our art; it is devoted to the consideration of the affections of the suprarenal capsules, and is one of the shortest in the entire work; in it we find this remarkable passage:—

"To locate during life any affection with positiveness in the renal capsules, would demand an acumen hardly possessed by medical observers in the present state of the science."

This sentence was written previous to the announcement of Dr. Addison's remarkable investigations, and though (as we shall presently see) the subject is done full justice to in a subsequent part of his work, Dr. Morland wisely permitted this chapter to stand as it was originally written. As we have

already stated, it is a remarkable exemplification of the advancing nature of our profession that in the first portion of this work we should read such a statement, whilst in the second we shall find it contradicted by a most undeniable description of the diagnosis, prognosis, pathological appearances, and treatment of these very diseases! We believe that a somewhat similar occurrence took place with reference to transatlantic steam navigation. Such of our readers as desire to read a full exposition of the present state of our knowledge of this hitherto obscure disease should refer to the second chapter of the second part of Dr. Morland's treatise, where they will find full particulars on this most interesting subject. On the present occasion we must content ourselves with the introduction of some extracts from the general *résumé* with which this chapter is concluded.

"Having thus assembled the testimony derived from this interesting series of cases, the following *résumé* of symptoms is subjoined, as tending to throw light upon the pathological conditions. The change of colour of the skin is mainly a diagnostic element; it awakens our suspicions, and thus far, when decided, has been indisputable. This pigmentary change has its places of election, and its peculiar forms. Beginning upon the parts most exposed to sun and friction, in irregular patches it extends, and is more marked in certain localities than in others. The neck, the backs of the hands, the front aspect of the thighs, and the arms, are most frequently affected. Wherever pigment is naturally abundant, the colour is most marked; thus, around the nipple it is deep, while the palms of the hands, and the matrices of the nails, are nearly or quite unaffected. This tendency is regarded as confirmatory of the idea that the change is really a deposit of pigment (Hutchinson). The continuance of the pearly-white of the conjunctiva is differentially diagnostic with a jaundiced condition. . . . .

"M. Brown-Séquard has lately made some important experiments relating to the physiology and pathology of the suprarenal capsules. He finds that when they are removed from a living animal, a remarkable change occurs in the blood, and death soon follows. To any objection that the experiment, by its seriousness, causes death, it may be replied, that much more severe ones are performed upon animals by this distinguished physiologist with conservation of life; and that complete recovery occurs if experiments be not continued upon the same animals. The circulatory change referred to consists in *an accumulation of pigment in the blood*, and in the production of a peculiar form of crystals, not offering the chemical reactions of hematoidine. Dr. Séquard advances the hypothesis that the function of the suprarenal capsules is to prevent the deposition of pigment in the blood. He believes that he has isolated a substance from the blood, which, were these organs absent or inefficient, would be con-

verted into pigment. If very largely furnished, the organs, even if healthy, might not be able to destroy it all. He refers to the fact, revealed by the microscope, that the colouring matter in Addison's cases is identical with that beneath the skin of the African. The blood, too, in the 'bronzed skin' affection, contains pigment-cells, pigment-granules, held in a peculiar substance, and the crystals already referred to. On these grounds M. Séquard thinks the supra-renal bodies may be considered *destroyers of pigment.* The crystals have been sometimes observed by him so large as to obstruct certain of the smaller vessels, even becoming impacted in them. Thus the circulation would be seriously impeded, and that the nervous system would be gravely affected, is another of this observer's deductions.

"There are but few discolorations of the skin arising from disease with which the true bronzing could be confounded. The brownish hue caused by chronic jaundice is not likely to be mistaken for one which 'strikingly resembles the colour of a bronzed statue from which the gloss has been rubbed off.' Moreover, the *conjunctivæ* and ungual *matrices* would be coloured in the hepatic affection, but clear in the bronzed skin cases; the discoloration in the former would be diffused; one of the chief characteristics of the latter is the *patched* and *mottled* form it assumes. Browning from the sun's rays is ineffectual upon parts protected by the clothing; the spots of *pityriasis versicolor* often have a great similarity to the bronzed skin; 'their limitation to the abdomen and chest, their defined outline, their furfuraceous surface, the slight itching which attends them, their contagious character, and, above all, the microscopic examination of the cuticle,' are sufficiently distinctive.

"The muddy hue caused by certain *cachexiæ* is more equally diffused than the bronzing, and it seldom closely enough assimilates the latter to deceive. Mr. Hutchinson, however, thinks it just possible that in two of the tabulated cases this error may have been committed.

"The excessive *debility* remarked is a very striking symptom. In connexion with the nearly constant freedom from marked emaciation, it has a special value. There is an utter prostration of body and mind, and often death seems imminent from sheer exhaustion, there being no tendency to thoracic disease. This state of things is noticed, with but one or two exceptions, in all the cases recorded. Although never extreme, there has been, in the majority of instances, loss of flesh; but there is a *flabbiness*, rather than an actual wasting. Anemia is nearly always remarked. The pallor of the unbronzed portions of the skin is extreme; the muscles are soft; the conjunctivæ pearly; the blood, examined microscopically in two cases, was found 'loaded with white corpuscles.' To this impoverishment of the blood, the weakness, breathlessness on effort, and feeble action of the heart, are, doubtless, correctly attributed; as also may be the irritability of the stomach. The *pulse* has been characterized by 'extreme softness and compressibility;' no increase

of its frequency is noticed. The *tongue* has not manifested other conditions than such as are usual in any disease where debility is the prominent symptom. Just before death the stomach becomes very irritable; anorexia, nausea, vomiting, pain and sense of sinking at the epigastrium, are spoken of. The state commonly called 'bilious' has been noticed. Costiveness is the rule; few patients have had diarrhœa. The *urine* has not, thus far, been found abnormal in any important degree. Lumbar pain was occasionally noticed; but in two such instances there was coexistent disease of the vertebræ, to which it might very properly be referred; and no reliable deductions can be drawn from its presence in the others. The cerebro-spinal functions were several times disturbed. Epileptiform convulsions in three persons; failure of memory, and remarkable change of temper, in one; and in another, numbness of the fingers, legs, and tip of the tongue, were some of the manifestations. One patient had tic-douloureux. At the Brighton Hospital, a peculiar odour was exhaled from the body in two cases; in one, for some weeks, in the other, for a few days only, before death. This has not been observed in other cases, and cannot be considered distinctive.

"Death has occurred chiefly by exhaustion; sometimes a peculiar collapse has preceded for a while the fatal event, without any assignable cause. Once this phenomenon was so sudden and extreme, that poisoning was suspected."

Returning from this digression to the consideration of the topics contained in the first part of his work, we find Dr. Morland devoting his third chapter to the consideration of the special diseases of the kidneys. In the enumeration of these he follows the arrangement adopted by Dr. George Johnson in his work on Diseases of the Kidneys. Each of these receives just attention at his hands—fatty degeneration of the kidney, however, having evidently been favoured, and from its importance deservedly so, with a marked pre-eminence. Without entering more particularly into the subject, we may content ourselves with stating that this portion of his work provides us with a faithful memoir of the principal points contained in the standard works on these subjects, written in a plain and agreeable style, without, however, advancing anything that can be looked on either as novel or original.

The fifth chapter, devoted to the consideration of the diseases of the bladder, contains much that is both interesting and instructive, collected from various sources, and the classification adopted is a practical one. Much that is interesting is recorded with reference to this part of his subject, and we have a well-executed plate illustrative of rather a curious cause inductive of an irritable condition of the bladder. Amongst the

frequent sources of this condition he enumerates the introduction of foreign bodies into the urethra, whether to relieve irritation or from prurient prompting. In this case a hair-pin was intruded, which worked its way up into the bladder, where it remained for six years, forming the nucleus of a calculus, which was ultimately removed, exhibiting through its centre the bent course of all this mischief. We are acquainted with a somewhat similar case, which did not, however, terminate so fortunately. In the case alluded to, the instrument employed was a tooth-brush, which being too forcibly intruded, became impacted, and subsequently gave rise to intense peritonitis, terminating in death. During life the cause was never suspected, as shame kept the patient's tongue tied, and it was only on a post-mortem examination that the true nature of the case was revealed. The whole of this chapter is well written, exhibiting a praiseworthy, painstaking desire to put on record all the available information in connexion with these subjects. One omission, however, struck us as being singular: we allude to Dr. Morland's not making any reference to the sounding board as a valuable adjunct in exploring for calculi by the sound.

The third chapter of the second part of Dr. Morland's work is occupied with the consideration of the pathology and treatment of diseases of the kidneys; and is one of the most important, if not the most important, chapter in the entire work. He ranges these diseases under the following heads :— Acute desquamative nephritis, chronic desquamative nephritis, waxy degeneration of the kidney, non-desquamative disease of the kidney, fatty degeneration, suppurative nephritis, nephritis from retention of urine, pyelitis, nephritis from renal calculi, tubercular or scrofulous disease of the kidney, cancer of the kidney, and hematuria.

We are unable to follow him through all these subjects; we must, therefore, content ourselves with the expression of our opinion that we have here placed at our disposal a most admirable *résumé* of these most important topics. Every standard author on these subjects has been placed under contribution. Considerable judgment has been displayed in the manner in which their views have been stated ; and the balance between conflicting opinions has been held by the hand of a most impartial, and at the same time a most competent judge. In discussing the *quæstio vexata* of uremia, we have full reference made to Professor Frerichs' opinion on this point—opinions which our readers will remember we have already placed before them in a former Number of this Journal, in the review of "Thudichum on the Urine," published in our Number for No-

vember last. In that article we stated that Scholthin vigorously opposed these views; and it appears that now we have an American author ranging himself under his banner. As this is a subject involving some most interesting points in physiology, we must make room for an extract from this portion of Dr. Morland's work :—

"This theory, however, like almost every new scientific proposition, meets with criticism, counter-experiments, and denial of its truth. In this country, attention has recently been drawn to it by Dr. William A. Hammond, Assistant Surgeon in the U. S. Army, who, in January last, read before the Biological Society of Philadelphia an account of some interesting experiments on dogs, made to test the effects of injecting urea and other substances into the blood. In one series of experiments he removed the kidneys, previous to injecting the substances; in the other, those organs were left intact. Whilst he admits the facts announced by Frerichs, he dissents from his theory. Urea, and vesical mucus, sulphate of soda, nitrate of potash, and carbonate of ammonia, were the substances injected.

"Dr. H. did not detect ammonia in the breath of any of the animals operated on by injection of *urea*. He believes that its presence in Frerichs' cases was 'accidental; that it is not to be regarded as an invariable attendant upon the retention of urea in the system.' The removal of the kidney in the above experiments seemed to have a marked influence upon the action of the introduced substances. Only one out of ten animals died where the organs were untouched, and that one from the effects of nitrate of potash; but all of the second series died after strong convulsions. Dr. Hammond argues that the condition of the animal without kidneys is analogous to that of persons suffering from Bright's disease, and that thus we can judge of the effects of the presence of urea in the system in large quantities in that affection. The *analogy* is confessed, but, as the conclusions under analogical reasonings have always a shade of doubt or fallacy about them, so it is here: there may be some subtle, undetected differences in the action and results of morbus Brightii, which somewhat change the aspect of the matter, and modify the phenomena.

"Dr. Hammond would ascribe 'the condition known as uremic intoxication to the direct action of an excessive accumulation of urea in the system;' and he thinks the fact of its harmlessness in the blood of some persons with Bright's disease is owing to their slighter susceptibility to its action than others.

"The author's *conclusions* from his experiments are:—

"1. That urea—simple, and combined with vesical mucus—carbonate of ammonia, and sulphate of soda, when injected into the bloodvessels of sound animals, do not cause death.

"2. That nitrate of potash, when thus introduced, is speedily fatal.

"3. That death ensues from the injection of any of the fore-

going named substances into the circulation of animals whose kidneys have been previously extirpated.

"4. That in neither case does urea, when introduced directly into the circulation, undergo conversion into carbonate of ammonia.' (See *The North American Medico-Chirurgical Review*, March, 1858)."

The fifth chapter contains an account of the diseases to which the bladder is subject. Cystitis and cystorrhœa come in for a full share of the author's attention, and are fully disposed of. In the treatment of this latter affection favourable mention is made of opium, administered both by the mouth and rectum We must, however, take exception to the quantity in which he employs this drug when administered by the rectum ; our experience being decidedly against so administering *two* to *four* grains of crude opium, or one drachm and a half of laudanum, in the form of an enema, at least without previously making ourselves acquainted with our patient's constitution. We have vividly in our recollection the case of a distinguished practitioner in this city, to whom we exhibited a suppository containing one grain and a half of opium, where very unpleasant symptoms arose in consequence ; and Baron Dupuytren's opinions on this subject, confirmatory of the sentiments we now advance, are too well known to our profession to require reiteration here. Amongst the remedies indicated for the treatment of neuralgia of the bladder, he does not mention the extract of stramonium, a medicine in which we have great faith, and the efficacy of which in allied forms of this disease has been announced by Begbie, Marcet, Elliotson, &c.

His remarks on the treatment of that most troublesome form of disease in children, incontinence of urine, are both sound and practical. He speaks highly of the employment of tincture of cantharides in these affections—an expression of opinion in which he is supported by such eminent authorities as Pereira and Roots. He does not appear to have much confidence in its treatment by belladonna, as suggested some years ago (we believe in 1846) by Morand. We allude more particularly to the *years* that this property of belladonna has been known to us, as within the past year we have seen it gravely announced as a recent discovery! Of its efficacy in this affection we, however, have had repeated and satisfactory experience Not long ago, a fine, healthy, full-grown lad, of fourteen years of age, placed himself under our care for this condition, at one of our public charities. He brought with him a *letter* stating his case, and winding up with the prayer that we should give him some relief, "as it gave him much shame." He was treated with belladonna, and made a speedy recovery.

We regret that we cannot speak in as favourable terms of the section devoted to the consideration of lesions of continuity of the substance of the bladder, as we have been enabled to do of some of the other portions of his work. It had been much better for Dr. Morland to have omitted all mention of the subject than to have treated so important a lesion in the very negligent and slovenly manner that he has done. Not one symptom of this affection is mentioned. The treatment is summed up in these few lines:—"This varies somewhat, according to the circumstances of individual cases. Severe injuries, and such as involve the peritoneum, admit of only palliative measures." Dr. Harrison's most important communication on this subject in the former series of this Journal is indeed quoted; but evidently quoted without ever having been consulted by Dr. Morland. It is even referred to as being in the eleventh instead of the ninth volume. We correct this error, as, previous to resuming this subject, Dr. Morland should consult not only this paper, but also the valuable communications furnished on the same subject by Mr. Cusack, in the Dublin Hospital Reports, vol. ii., and by Mr. Stapleton in the ninth volume of this Journal. We the more regret Dr. Morland's not having perused Dr. Harrison's paper, as it would have induced him to place to the credit of Irish surgery the merit of having originated the *principle* by which the operative interference was guided in the case he alludes to in the practice of Dr. J. Walker.

Again, in the section devoted to retention of urine, we have to deprecate his extreme brevity: he contenting himself with the introduction of a *plate* to indicate the different points at which puncture of the bladder may be effected, and, for the description of the various modes of performing the operation, referring the reader to "Druitt's Vade Mecum and the work of Dr. Gross;" and this in a work in which he considers it necessary to give a full account of the operations of lithotrity and lithotomy. Why these latter should be described at length, and the former disposed of in so summary and cavalier manner, passes our comprehension.

The all-important subject of calculus in the bladder receives a just share of the author's attention. The treatment is properly arranged under two heads:—First, the medical and chemical; second, the surgical; and both of these are ably treated. Lithotrity and lithotomy are both fully discussed; their respective advantages are considered, and the cases suited for one or the other indicated. The various operations are illustrated with very fairly executed woodcuts, as also the several instruments

that are to be employed. In enumerating the various sources from which hemorrhage may arise during the performance of the lateral operation, Dr. Morland does not appear to us to have been sufficiently particular: he contenting himself with merely stating that "any anomalous arrangement of the perineal vessels subjects the patient to the risk of bleeding; and such a deviation from the usual distribution is by no means uncommon." This, we think, is rather a meagre and *jejune* method of disposing of so important a subject. That such anomalies are anything but uncommon, a very slight attendance in our anatomical halls will convince even a superficial examiner. Indeed, an irregular position both of the pudic and of the dorsal artery of the penis is so frequently met with in anatomical investigations, that one is more induced to be astonished at the comparative rarity of accidents of this nature during the performance of the lateral operation, than to be surprised when they do occur. In enumerating the various means at our command for controlling hemorrhage, should it unfortunately arise, Dr. Morland omits to mention the *canule en chemise.* We are the more surprised at this, as he must be acquainted with it; and we have seen it do good service on more occasions than one.

The sixth and last chapter in the book is occupied with the all-important subject of stricture; and he appears to have done it as much justice as could be rendered it in a work in which it could only be allotted a chapter. The causes, symptoms, and various plans of treating this occasionally most unmanageable disease are succinctly laid down, and the observations appended are those of a sound and practical surgeon; but our remarks have already extended so far that we must content ourselves with this general notice, and forego entering into a detailed analysis of this portion of his treatise, which is brought to a termination by an Appendix, in which, as we have already stated, the reader will find much valuable and interesting matter. In this portion of his book Dr. Morland has introduced the important question of the analytical examination of urine; and to this subject he has not done anything at all approaching to justice. It is vain for him or any other writer to hope to be able to communicate to his reader all that he will require to know, even for a very superficial clinical examination of urine, in two pages. Here, as in his anatomical descriptions, it will be more prudent for Dr. Morland either entirely to omit, in any future editions, the subject, or more fully to enter on it. In no other profession is a little knowledge a more dangerous possession than it is found to be in ours;

and nothing tends more to foster this kind of information than these *sketchy* descriptions. What opinion would we entertain of a student who at his examination told us that in the operation of lithotomy "the transverse perineal artery is *sometimes* wounded"? or, in describing the value of the microscope, would venture on the rather flippant statement, that "pus, mucus, blood, fibrinous coats, urate of ammonia, uric acid, oxalate of lime, phosphate of ammonia and magnesia, &c., *may or may not be seen*"? Surely Dr. Morland cannot expect us, at this period of the nineteenth century, and in the present position of chemical science, to accept as a "list of the usual means now necessary for a common urinary analysis," one which is limited to testing the acidity or alkalinity of the urine, to establishing the presence of albumen and urea, and taking its density by means of an urinometer! In the present age of competitive examinations a student would stand but a poor chance of securing one of our public appointments, whose paper, in reply to such a question, would not contain a more explicit account of the steps necessary to be taken in conducting even "a common urinary analysis."

In concluding our notice of Dr. Morland's book, we must express a most sincere wish that he will receive in good part the observations we have found ourselves called upon to make upon the result of his labours. Did we not feel it to be a work of more than average pretensions, we should not have so fully entered on its merits and its demerits. It bears evidence of so much careful labour, of such a painstaking desire to impart the greatest amount of information in the smallest space, that we should be sorry to see its success marred by the few blemishes to which in the present article we have alluded; and nothing would afford us greater pleasure than that Dr. Morland should reap a rich harvest for the labour he has bestowed on the production of a work which bears the impress of great research, sound judgment, and an anxious desire to state facts clearly, and withal modestly.

Lehrhbuch der Histologie des Menschen und der Thiére. Von Dr. Franz Leydig, Professor an der Universät zu Würzburg.

Elements of Human and Animal Histology. By F. Leydig. Frankfort-on-Main; Meidinger & Co., 1857. 8vo, pp. 551.

In most systematic works on human histology or microscopic anatomy, the description of the different organs of the human

body is generally preceded or followed by some reference to the same organs in the rest of the animal series. The comparative anatomy or histology thus given is generally of a very uncertain and unsatisfactory nature, sometimes very brief, and at others so minute as to monopolize unduly the space required for important details of structure of the human frame.

The capricious manner in which comparative histology is handled is such as to render it most difficult to find, except as a matter of chance, complete details respecting any given organ of the animal kingdom. Some important organs, such as those of vision, might, it is true, be cited as exceptions.

Comparative histology has, however, of late been accumulating materials which render it daily more and more important, from its greater practical bearings and points of contact with medicine and natural history.

In the work of Professor Leydig, now before us, we recognise the first serious endeavour to supply the desideratum we have just signalized, by embodying, in a systematic manner, the most important facts of the histology of man and animals lying scattered in so many publications.

Professor Leydig describes his work as an attempt to present a general exposition of the isolated facts obtained by modern observers, himself included, on the histology of the animal kingdom, and, wherever feasible, to reduce these individual facts to more general propositions.

We should have preferred the title of "*Outlines* of Comparative Histology" to that given to the work, as being more appropriate, both as regards the objects proposed by its author and the manner in which he has treated the subject.

The first section consists of a general description of the histology of cells, and their development and metamorphosis into membranes.

The second part comprises the special histology of the various systemic organs, such as the integuments, the muscular, osseous, and nervous systems, the organs of sense and of digestion, &c.

In the treatment of these subjects the description of each organ commences with the account of its structure in man, which is followed by its histology in the vertebratæ and invertebratæ.

Such is our bill of fare, which a close inspection shows us has been methodically followed throughout the work. It contains a rich store of illustrations, amounting to nearly 300 woodcuts, chosen with great judgment, and executed in a superior manner. As regards their originality, this work is a happy exception to most others on microscopic anatomy, where we

are constantly presented with old friends with new faces borrowed from Kölliker or Todd and Bowman.

Taking, for example, the account of the structure of the intervertebral ganglia, we see at once how entirely he has discarded the ideal illustrations which Kölliker gives of them. He has adopted the views of C. Robin, Wagner, and Bidder on the bipolar structure of these ganglia, so easy of demonstration on fishes. The establishment of this fact throughout vertebrate animals, for which Wagner has long contended against Kölliker, is founded not only on minute anatomy, but also on numerous experiments of a physiological nature made by Waller, showing the spinal ganglia to be the centre of a nutritive influence of a bipolar character.

Leydig's figures of these ganglia are interesting, and explain some of the discrepant opinions respecting their structure entertained by previous observers.

We should be glad to see a translation of this useful work, which at present is restricted to the comparatively small class of English readers acquainted with the German language. The illustrations, however, are so interesting and valuable, that even on their account alone we have no hesitation in recommending it to students pursuing comparative anatomy. Those illustrating the organs of hearing, sight, and touch, are such as not to be met with elsewhere.

Principes de Mécanique Animale; ou Étude de la Locomotion chez l'Homme et les Animaux Vértébrés. Par Felix Giraud-Teulon, Docteur en Médecine, &c. Paris: J.-B. Baillière et Fils. 1858. 8vo, pp. 484.

From the most remote times the mechanism of animal movements has been a fertile and suggestive theme of physiological investigation; and it will be admitted that the more deeply the subject is inquired into, and the more widely we extend the field of these inquiries, the more luxuriant will appear the range of new, brilliant, and inviting problems, each in turn claiming our special and attentive consideration, while each also lends some new light to aid in the development of other hitherto obscure and unexplained principles.

The author of the present essay, we learn from the preface, has adopted Borelli's work "De Motu Animalium" as his model, at least in regard to the general arrangement of the subjects treated of, but of course not altogether in the mode of handling them. When we consider the age in which Borelli wrote,

the state of physiology at the time, and the comparatively imperfect degree of development which the exact sciences had attained, we should be disposed to attribute such imperfections as we might find in his work, more to these circumstances than to any incapacity on the part of a writer of such acknowledged sagacity, industry, and truthfulness. Such also was the opinion expressed by our author upon perusing a portion of the treatise in question. "A more profound study, however," he adds, "has in some degree modified this judgment, and the details upon which we shall enter in the course of this essay will account for this apparent change in our opinions. While we entertain the greatest respect for the penetration, judgment, and observation which characterized the mind of the great physiologist, we cannot avoid recognising that with him instinct and *coup d'œil* appeared to take the place of geometric precision. Thus, where we expected at first that his propositions would merely require to be rectified, or reduced to formulæ more in accordance with the scientific language of our day, we regret to have found the necessity of adopting numerous retrenchments and formal contradictions."

The first chapter is occupied with some general preliminary considerations upon muscular action, including voluntary and tonic or involuntary contractility, the latter governing the equilibrium of repose, while the former is employed in maintaining that of motion. Conceiving an erroneous idea of the tonic force, Borelli believed that in order to produce all the effects of which they are capable, the muscles require to be stimulated to action by a certain resistance on the part of their antagonists. He based this opinion upon an erroneous appreciation of a fact which was true in itself, but badly interpreted. A century and a half later, Barthez attributed to the muscular tissue a property not less extraordinary, of which he has treated under the name of *fixed situation* of muscles. This notion appears to have arisen in consequence of his confounding the position of equilibrium in the levers with some new force which he conceived to be a peculiar molecular repulsion arising suddenly in the fibres of a muscle,—a force not less imaginary than useless, and quite inadequate to account for the facts of the case, for if such a force existed, it would obviate the necessity for antagonism of muscles altogether. Having disposed of these and some other curiosities in the history of muscular physiology, the author proceeds to consider what he calls *conscience musculaire*, or that property or quality inherent in the muscles or the nerves by which they are connected to the sensorium, which enables them to convey to that part a conti-

nuous testimony, as it were, of the extent and energy of their action. This sixth sense, or muscular sense, which has been so clearly and beautifully illustrated by Sir Charles Bell in his Bridgewater Treatise, we find here to have been "recognised anew and demonstrated by M. Duchenne de Boulogne," who designates it *muscular consciousness*, and this name has been adopted by the author of the present treatise. Most considerate proceeding, no doubt, if under a new name he would convey a newly discovered idea! but we are disposed to object to these revolutions in nomenclature whenever we find them calculated to dissociate a theory or a discovery from the name of its original proprietor.

The author alludes to a newly discovered force which he conceives will be found to play an important part in the production and maintenance of equilibrium in animal dynamics: namely, a contractile property possessed by the tendons of certain, perhaps of all muscles. The discovery of this property is ascribed to M. J. Guérin; up to the present time, however, its application to the questions under discussion has not been sufficiently demonstrated to enable the author to arrive at any definite conclusions with regard to it; he, therefore, disposes of the subject briefly with a few cautious remarks.

In the second chapter will be found a very elaborate and complete *résumé* of all the mechanical conditions which attend the erect posture of the human framework in a state of rest and equilibrium—not the least important chapter in the book, inasmuch as to this posture necessarily, and to its conditions of repose as a *point de départ*, must all the various phases of locomotion have reference.

In working out the great mechanical problem of equilibrium in the standing posture, the author proceeds by considering the framework as a series of levers, having their fulcra successively each upon the preceding lever, the latter considered as being itself in equilibrio; and in this way the theoretical question becomes one of much simplicity in each of its details. Were we obliged, however, to follow step by step through all the simple articulations till we should arrive at the ultimate point of support, the study of the subject would be tedious enough. The manner in which it has been placed before us in the present treatise is, to arrange the details at first in large groups or subdivisions, thus conducing to a rapid and satisfactory view of the whole. Thus, the body being divided into three portions, and each being supposed to be in equilibrio by itself, that is, in the conditions necessary to stability, the relations of one part to another, or of all three together, are

brought within an easy grasp. But without at the same time including in our examination some of the other classes of the animal kingdom, we could not study fully and properly the mechanism of the human frame, whether at rest or in motion; without this concomitance of research, a number of problems must fail to be satisfactorily solved. This principle appears to be fully recognised in every part of the work before us, and we find that the comparative anatomy of the various parts of the skeleton is constantly referred to, not only in connexion with, and elucidation of, questions in human anatomy, but also occasionally for the purpose of explaining the production of some movements which are peculiar to the different classes of the zoological series. There are several very interesting points in the course of this chapter, to which we would gladly refer in this place, but in order to do so we should be obliged to have recourse to diagrams. There is one subject, however, upon which we cannot avoid dwelling, as it is one whereon anatomists hitherto appear not to have altogether agreed; we allude to the mechanism of the pelvis; it is well known that some descriptive anatomists entertain views in relation thereto which are quite at variance with those advanced by others; while many would seem to have considered the introduction of the subject into a descriptive treatise as unnecessary or unimportant.

In section VI. the equilibrium of the pelvis is considered in two distinct points of view: namely, first, as a mechanical organ of intermediate position between the spinal column and its own supports; and secondly, with regard to the preservation of its annular form, so necessary for its special function in the female. To the first of these we would principally refer in the following details of the author's views.

Considering how important it is that the spinal cord should be well protected against succussion through the bony envelope in which it is enclosed, we are led to inquire into the nature of the structures situated at the base of this column, this being the part through which shocks are usually transmitted under ordinary circumstances.

"Doubtless," says the author, "the intervertebral discs of cartilage appear to stifle in an admirable manner the succussions which may be propagated along this column, but that is not sufficient. It is probable that nature will have accumulated her ingenious resources in order to diminish as much as possible even the first intensity of these shocks. Thus, in case of a fall from a small height upon the feet, we know that all the levers which constitute the lower extremity become flexed,

so as to transmit in a direction other than that of their length the impetus received by the sudden contact of the ground; that this flexion, usually proportioned to the degree of force to be met, imposes upon the extensors of the limb the loss of vital energy consequent on every violent shock; that then, the result of this shock has become much diminished on reaching the upper extremity of the limb."

This leads him to consider the mode in which the force is transmitted then from the thighs to the higher parts of the trunk *in traversing the pelvis.*

" Hitherto," he proceeds, " the mode of union between the sacrum and the iliac bones has been but imperfectly explored; to us at least it has appeared that the true bearings of the case and their advantages have not been sufficiently appreciated. The sacrum, according to all the anatomists, considering its doubly angular form from above downwards and from before backwards, exercises in both ways the function of a wedge between the iliac bones. Its function, in the statics of the vertebral column, depends expressly upon this twice-inclined form."

He then quotes the following passage from Cruveilhier, as the exponent of the general opinion on this subject[a]:—" ' The weight of the trunk is transmitted in the axis of the upper half of the sacrum, and consequently in the direction of a line sloping downwards and backwards: from this it follows that the sacrum must have a tendency to be displaced either downwards or backwards; but the former displacement is prevented by the position of the ossa innominata, which are nearer to each other below than above. The backward displacement is obviated by the oblique direction of the articular surfaces of the same bones backwards and inwards, whilst the obliquity of the sacrum itself is in the opposite direction, for it is broader in front than behind.

" Note:—' Without admitting that the influences to which the sacrum is subjected have a tendency to force it backwards as well as downwards, it is impossible to explain either the use of its being shaped like a wedge, with the base turned forwards, or of that powerful apparatus of posterior ligaments which can only resist its dislocation backwards. The idea that these forces tend to press it forwards is manifestly at variance with the nature of the uniting media, for the sacro-iliac symphyses are only maintained in front by a very thin ligamentous layer, and the breadth of the space between the iliac bones is also

[a] Vol. i., p. 513.

greater in front than behind,—circumstances that would evidently facilitate displacement forwards.'"

We do not quite comprehend the latter part of this phrase; for in one sense it seems to imply a contradiction of the author's own proposition. If, in fact, the space which separates the iliac bones is more considerable in front than behind, one would think that the sacrum should be able to escape in front under the influence of certain forces, but that it could not under any circumstances be disengaged posteriorly; an opinion which at the beginning of the phrase appears to M. Cruveilhier to be opposed to the means of union. We pass over this, however, and proceed to the examination of those things which modern works allow to admit of more certainty.

"In their experimental researches upon the situation assumed by the pelvis during the action of standing upright, the brothers Weber have established by accurate measurements several fundamental facts. They have shown, for example, that in the erect posture the upper surface of the first sacral vertebra makes an angle of 38° with the horizontal, or 52° with the vertical plane. Now, if we place a sacrum in this position with relation to two right lines representing the horizontal and vertical, and that we draw on paper, in exact relation with these lines, the outline of the sacro-iliac articulation, we obtain a figure in which," &c. [We must omit so much of this description as relates to the diagram which accompanies it in the original, and endeavour to convey the author's views in modified terms.] Suppose now that the sacrum has to transmit to the iliac bones the action exercised by the weight of the upper parts of the trunk; and further, that this action were endowed with a certain acquired velocity, whence would result a shock to be deadened,—a vertical line represents the direction of this force applied to the centre of the superior surface of the sacrum. Now, if through this line we carry a vertical plane parallel to the direction of the shoulders, this plane would describe, on the two articular facets of the bone, two right lines which would meet *above*, and not *below*, the sacrum. The force directed vertically upon the sacrum would then have the effect, not of impacting this bone between the hard surfaces of the two iliacs, but would exhibit, on the contrary, a tendency to relieve it from impaction; the sacrum, therefore, so far from being a wedge with the apex downwards, is rather a *reversed* wedge, suspended by the interosseous ligaments between the iliac bones.

The pressure which it supports *tends* solely to make it slip, not as a wedge which is being driven, but as one which is being withdrawn. The effort or shock which is to be appeased

is supported altogether, provided it does not exceed certain limits in relation to the extent of the locomotive functions, by the resistance to traction suffered by the enormous interosseous ligaments which are perceived immediately *above* the articular sacro-iliac surfaces. "This manner of appreciating the connexions of the sacrum and the coxal bones becomes very striking when we come to consider the comparative anatomy of this part. In all the mammalia we see the sacrum impacted like a wedge, with its narrow end directed *upwards*. It is only in looking at it on a table, and in a position quite foreign to that which it occupies while endowed with life and motion, that anatomists have been able to see it as a wedge with the base upwards. For it is certain that when we view the inclinations of the articular surfaces in their real and true position with regard to the vertical line, these facets clearly belong to a wedge whose base would be directed downwards. In the sitting posture, matters are somewhat different. In this attitude the function of a wedge may be realized in some measure by the upper half of the articular facet. This, perhaps, may be the reason why a fall on the nates appears to produce so severe a concussion."

The exposition of this mode of viewing the part played by the sacrum, although recognised long since by the present author, is due, he informs us, to Messrs. Hubert and Valérius, of the University of Louvain[a]. As a strong pathological proof in favour of the opinions advanced above, the author cites the following description of an osteomalacic pelvis from the treatise of Messrs. Hubert and Valérius. In this pelvis "the hindermost part of the iliac bones has yielded to the traction of the sacro-iliac ligaments, to such a degree that the internal iliac fossæ present *posteriorly* a deep transverse channel. But the effect is not limited to this: *the articular facets of the coxal bones are bent or folded on themselves in an antero-posterior direction*, and have thus become *too narrow* for the corresponding facets of the sacrum, so that this bone emerges, as it were, and forms a projection into the pelvic cavity.

"Can we look for a more positive proof of the real action of the sacrum on the iliac bones? Is it not clear that if it had acted as a wedge between these softened bones, it would have tended to crush, bruise, and enlarge their articular facets, in place of folding them on themselves?"

The remainder of this section is devoted to the consideration of the pelvis in relation to the maintenance of its annular

[a] See the "Gazette Médicale de Paris," 15th and 22nd November, 1856.

form. Here the author has endeavoured to demonstrate from mechanical reasoning, that the forces which act upon this osseous ring would have a *tendency*, were they not impeded by the assistance of the bony and fibrous tissues of the framework, to increase the transverse diameter of the superior strait, to depress the summit of the upper curve, to straiten the anterior and inferior arc, by pushing inwards the ilio-pectineal region, and drawing downwards and outwards the pubic symphysis. Some of these effects should therefore be presumed or feared to exist, should any cause of diminished resistance or rigidity in any part of the pelvis supervene.

For abundant pathological illustrations of the effects of these forces upon structures weakened and softened by disease, we refer our obstetric readers to the appendix, in which they will find some interesting practical details, which, however, do not admit of our epitomizing without the aid of engravings.

The various mechanisms by means of which the acts of walking, swimming, climbing, and all the other movements of men and animals are produced, form the subject-matter of the remaining chapters of the work; after which is an admirable analytic *résumé* or recapitulation of the whole. This latter constitutes a valuable feature of the volume, affording, as it does, something more than a mere reference to the places where the various subjects may be found.

In a physiological point of view the work of M. Giraud-Teulon abounds with matters of deep interest to the reflecting mind. The author evinces an earnestness and energy which are not less gratifying than is the rigid accuracy which he ever seeks to attain in the development of his propositions. Wherever it is possible, he delights to see these assume the shape of mathematical formulæ, and express concisely and definitely the general principle which has resulted from a careful comparison of numerous and varied facts. In fine, we consider the present volume, of whose general tone our readers will judge from the specimens contained in the foregoing extracts, a valuable addition to our works on physiology.

Die Einflüsse der Vaguslähmung auf die Lungen und die Hautausdünstung. Von G. Valentin, Professor der Anatomie und Physiologie in Bern.

On the Influence of Paralysis of the Vagus Nerve on Pulmonary and Cutaneous Excretions. By Professor Valentin. Illustrated by woodcuts. Frankfort: Meidinger and Son, 1857. London: Williams and Norgate. 8vo, pp 157.

In the comparatively small compass of 157 pages, 8vo, Professor Valentin minutely describes numerous experiments on the vagus nerve, relative to the chemical and mechanical results on respiration attending its section.

The first and greater portion of the work relates to the chemical phenomena of respiration consequent upon section of this nerve; while the concluding part treats of the mechanical changes resulting from this lesion.

On the cover of the work are represented the apparatus and animal as under experiment, the latter apparently in a state of enviable comfort. The apparatus consists of an air-tight case, in which the animal remains for upwards of an hour, after which the air within is carefully analyzed. In order to render the conditions of the various experiments as invariable as possible, the case containing the animal is almost entirely submerged in water of a given temperature, while the pressure of the air contained and its temperature are measured by instruments placed near the animal. On performing each experiment, the lid of the case is rendered perfectly air-tight, by luting most carefully the joints of the lid.

The subject, which in these experiments is always a rabbit, is therefore breathing in a very confined space, the air becoming more and more vitiated by the accumulation of carbonic acid. Most persons would be consequently apt to object *in limine* to the observations, as being entirely inapplicable to respiration in its ordinary conditions; and certainly, in the case of any human being in like conditions, we should be very loath to admit that the changes observed in the chemical composition of the exhaled gases could be considered as applicable to respiration in its normal condition.

Professor Valentin states, it is true that even with 5 per cent. of carbonic acid in this atmosphere, rabbits eat, and appear by their movements to feel quite at home in the apparatus; yet we cannot but think that the experiments would have been more reliable if means had been taken to eliminate the carbonic acid as it was produced.

We believe that some simple arrangement might have been adopted for this purpose similar to that employed by M. Payerne,

in his subaqueous experiments, where the air is constantly purified by passing it through lime-water. The animal might be made to purify its own atmosphere from carbonic acid by some rotary contrivance, like that in a squirrel's cage, and thus remove, or at least diminish, the influence of this toxic agent.

Notwithstanding these objections, we must admit that the results obtained under these conditions by Professor Valentin are almost identical with those of Regnault and Reiset, where the atmosphere surrounding the animal was constantly renewed.

Important results were obtained respecting the relative proportions of oxygen, carbonic acid, and nitrogen, given off by respiration, which were found to be changed immediately after paralysis of the two nerves, and in a less degree after paralysis of even one. Thus, it is well known that a considerable surplus of oxygen is always absorbed into the system above what is exhaled as carbonic acid; but after section of the vagi this surplus is greatly augmented. There is likewise a corresponding augmentation in the quantity of nitrogen over what is normally exhaled.

Hitherto physiologists have been unable to account for the oxygen thus disappearing, although the experiments of Dr. Bence Jones on the combustion of ammonia have certainly thrown great light on the subject. Professor Valentin's experiments will probably afford us the means of still further elucidating this difficult subject.

For those persons engaged in the chemical study of respiration in cases of disease, we may confidently recommend this work of Valentin, which, although presenting at first sight a somewhat formidable appearance from the numerous tables and calculations which it contains, nevertheless, on that very account will be found a most excellent guide in this field of inquiry. It not only indicates the points to which the attention of the practitioner should be directed, but by means of its arithmetical calculations and formulæ the labours of any subsequent inquirer will be considerably facilitated.

We must not omit to notice that Professor Valentin has taken no steps to isolate the cutaneous from the pulmonary excretion, consequently his results represent the combined excretions of the two organs. In France M. Berne, however, has shown that in rabbits the gaseous excretion from the skin may be estimated separately from that of the lungs.

One drawback to the utility of this work is the frequent reference made therein to the author's fourth edition of his Text-book of Physiology (Grundriss der Physiologie), recently published, without which it is almost impossible to follow some of the experiments.

Lectures on Chancre, delivered by M. Ricord, *Surgeon to the Hôpital du Midi, Paris.* Published by M. Fournier, with Notes and Cases; and translated from the French by C. F. Maunder, F.R.C.S., &c. London: Churchill. 1859. 8vo, pp. 244.

Lettsomian Lectures on Syphilis. Delivered before the Medical Society of London in 1858. By Victor de Méric, Esq., &c. London: Churchill. 1858. 8vo, pp. 68.

In the twenty-first and following Numbers of the present series of our Journal we gave an analysis of the views entertained by Ricord on various long-disputed questions in connexion with the venereal disease. These views, it will be remembered, were expressed by him in a series of remarkable letters published at that period, and which have since undoubtedly influenced to a great degree the opinions of the profession on the pathology and treatment of the disease. To them, for example, we are fairly indebted for the final settlement of the dispute as to the identity of the gonorrhœal and syphilitic poisons. The mistakes into which John Hunter was led in his inoculations with the virus of these diseases, and which tended so powerfully to obscure his views, were demonstrated when Ricord happily thought of invoking the speculum to his aid in following out the investigations of his great predecessor. To-day, thanks to this instrument, nobody dreams of confounding the two diseases.

In them, too, he insisted upon the admission of his views on the local character of the venereal disease in its early stage, as a fundamental point of doctrine, the truth of which is now very generally admitted. This discovery of his giving rise, as it has done, to the very general adoption of the abortive method of treatment, has been followed by the happiest results in a therapeutic point of view. There is little room to doubt that it has enabled us frequently to cut short the disease before it has had time to take root in the constitution, whilst it has induced, on the part of those subjecting themselves to infection, a habit of more promptly applying for professional aid; both which circumstances have, we think, powerfully tended to arrest its progress and malignancy.

With happy sagacity he also traced out that succession of constitutional symptoms which, under his designation of primary, secondary, and tertiary, mark the progress of true syphilis—an arrangement which may be said to have received the universal sanction of the profession.

The establishment of these great truths, highly important

though they were, left much to the active genius of Ricord still to accomplish before he could boast of having mastered the problems of the syphilitic disease. Amongst the chief of these was the discovery of the general laws of succession from primary to secondary, by which to explain the varied and apparently contrary facts every day's clinical experience presented to him. This difficulty, which had baffled the great minds of Hunter, Abernethy, and Carmichael, and which Wallace and others vainly sought to reconcile by some pet theory of their own, was no less a stumbling-block in *his* way. Disposed, as his letters tell us, to suspect a plurality of poisons as the only solution of these difficulties, he yet had not been able to find the clue, as it were, to guide him to a positive declaration of his belief. We therefore find at that period, whilst endorsing Hunter's opinion of the unity of the syphilitic virus, he attributed, with him, the varied effects produced by it to differences of constitution, locality, &c.

His active mind did not, however, rest contented, and in the volume before us we find the evidence of five years' additional labour, pursued with his characteristic zeal and ability, resulting in a doctrinal system which, to quote the words of Victor de Méric in his Lettsomian Lectures, now before us, " stands now, in spite of a great many attacks, a handsome edifice, as remarkable for harmony and symmetry as for its practical applications."

It is a striking feature of Ricord, and one in the highest degree creditable to him, that he has succeeded in inflaming with a zeal scarcely less energetic than his own, a corps of most able men, to aid him in working out his views of this disease;—with just pride he styles them his pupils, and frequently refers to their labours, as to those of his " school of the Midi." Indeed, it would not be easy to determine how much of his deservedly acquired fame as the greatest of living syphilists has been derived from the reflected light of Melchior Robert, of Bassereau, Clerc, Fournier, and others, and, let us add, of his British pupils, of whom Acton and Victor de Méric may be named as amongst the most distinguished.

The volume of M. Fournier, an excellent translation of which is presented to us by Mr. Maunder, treats only of chancre; it purports to be a transcript of a course of Lectures delivered by Ricord in the year 1856.

To describe the book, however, as a simple transcript, would be to do great injustice to M. Fournier, who exhibits in his elaborate notes and series of cases appended to it, evidence of a most active and unwearied industry, and very consider-

able ability in following out in them the ideas of his master to a complete and logical demonstration. And here we may add, by way of parenthesis, that the resources possessed by the distinguished Professor and his school in pursuing their investigations of this disease, arising out of the complete surveillance exercised in Paris over prostitution in all its details, places them in a position of advantage no practitioner in Dublin, or, indeed, in any part of Great Britain, could hope by possibility to attain.

The conclusions to which Ricord has been led by these later researches are undoubtedly startling, chiefly in the fact that they have induced him to ignore as *syphilitic* seven-eighths of those chancres the profession have been blindly regarding as such from time immemorial;—and yet, if we are to credit M. Bassereau, to whom it seems is due the honour, if such it be, of having first clearly defined the new doctrines, the profession were not always so blind. Here is his statement:—

"When we read all that ancient and modern authors have written on the diseases of the organs of generation, we find that gonorrhœa, chancre, buboes, and vegetations, are mentioned up to the last years of the fifteenth century, as maladies requiring only local treatment: consecutive affections had never up till that time been heard of. The end of the fifteenth century is marked by the appearance of a NEW DISEASE, according to all the contemporary authors. This malady commences by ulcers, which are rapidly followed by pustular eruptions over the whole body, and frightful pains in the head and in the extremities. Those who were eye-witnesses of the appearance of the new disease do not confound the callous ulcerations by which it commences with the ulcers of the organs of generation known for ages. Thus these two species of contagious ulcers occupy in their writings separate chapters, and even books. But twenty or thirty years after the apparition of syphilis in Europe, a great number of physicians not knowing, as those who had witnessed the first ravages, how to distinguish the affections by which the new disease commenced from those which had no relation whatever with it, assumed by degrees the habit of submitting to mercurial treatment, without distinction, all patients affected with blennorrhœa, chancres, and bubo; for it had already passed into general practice to administer mercury, not only as a modificator of existing syphilitic symptoms, but as a prophylactic agent against affections to come from the moment the first signs of contagion commenced to appear. The confusion which reigned in practice was soon introduced into the works of the day."

Ricord would appear to have completely given in his adhesion to these views of his pupil. Accordingly, we find his

first twelve Lectures devoted to elaborately explaining the characters of the two distinct forms of primary ulcer he proposes to admit, and which he has named, from their leading character, "chancre mou," and "chancre induré." In his thirteenth Lecture he thus sums up his opinions with regard to them:—

"Allow me, now that I have separately delineated the characters peculiar to each chancre, to draw a parallel between them.

"1. The simple, non-infecting chancre allows the tissues in which it develops itself to retain their normal suppleness. It is a chancre with a *soft base.* The inflammatory complications that it may excite sometimes give to its base a certain degree of hardness; but you know that this hardness presents characters totally distinct from the induration peculiar to the other variety of chancre.

"2. It is generally *multiple*, either *at once*, or by a series of inoculations consecutive to the first contagion.

"3. Its pus possesses in the highest degree the characters peculiar to contagion; it is an inoculable pus, *par excellence.* Observe, that this specificity of the secretion, furnished by the ulcerated surfaces, persists almost during the entire existence of the chancre.

"4. It is a chancre possessing an *invading and destructive tendency.* It is the variety most likely to undergo the phagedenic deviation.

"We have here four well-defined characters: let us now compare them with those of the infecting chancre:—

"1. Its base is indurated; and indurated in a special manner—pathognomonic.

"2. It is generally a solitary chancre; rarely multiple.

"3. Its pus rapidly loses all virulent specificity; at all events, for the infected subject, who, within a few days, becomes refractory to inoculation with his own virus.

"4. The infecting chancre does not present any great tendency to extend itself; it soon limits itself, and spontaneously arrives at cicatrization. It rarely assumes the phagedenic form.

"So much, gentlemen, for the symptomatology. But this comparison would be incomplete, if we neglected to add the following considerations:—The simple chancre is very common; the infecting chancre is comparatively rare. The simple chancre seems excluded from one part of the body—the cephalic region; the infecting chancre is produced everywhere. The one is, PERHAPS, transmissible to animals; the other affects but man, and all kinds of animals are constantly refractory to its virus. Finally, and this is the principal point—the first may be produced repeatedly on the same individual; whereas, the second can only be developed *once in its form.*

"Finally, the investigations on contagion establish between these two varieties of chancre differences far more considerable, perhaps, than the symptomological considerations previously developed. But it is, especially, the question of prognosis which makes of the two chancres completely independent nosological species; I might

almost say, opposed. The simple chancre is a local lesion, without influence on the economy: it is a *chancre without syphilis.* The indurated chancre creates a diathesis, engenders a general state, a morbid temperament: it is the initial expression of a constitutional affection: it is the *exordium of syphilis.*"

That these statements are in the highest degree deserving the attention of the profession, will be readily admitted. If their truth be established, they reduce genuine syphilis in its primary development to the comparatively narrow limits embraced within the Hunterian chancre; all those other forms of sore hitherto included in the same category with it, although liable to be followed by suppurating bubo, and to take on phagedenic action, are, in effect, to be no more considered syphilitic than would be a simple wound of the lower extremity attended with a sympathetic bubo of the groin.

The proofs afforded us in M. Fournier's volume of the truth of these doctrines are derived chiefly from inoculations made with the utmost care in many hundreds of cases—patients in the Midi. Some instances in addition are brought forward of inoculation of healthy individuals—" virgin subjects"—in the phraseology of Ricord. Of these the case of M. Lindman is the most singular. This gentleman, apparently a member of the profession, through a pure feeling, as we are informed, of doctrinal enthusiasm, has inoculated himself over two thousand five hundred times with the matter of the simple non-infecting chancre of Ricord, with the double result of, firstly, in each case producing at the seat of inoculation a well-defined chancre; and, secondly, of never having had secondary symptoms.

But, unquestionably, the strongest collection of facts in support of the new views is furnished by M. Fournier himself in those series of cases in which, with admirable perseverance, he traced back the histories of infected patients admitted to the Midi, sought out the frail fair ones to whom the unfortunates ascribed their misery, and, with speculum in hand, discovered unerring evidence of their complicity, and of the correctness of Ricord's pathology. One of those well-traced histories details how a father and his two sons became similarly infected by a servant-maid, with whom all three were cohabiting at the same time!

We should err, it appears, were we to imagine that all would be plain sailing with us, once we had given in our adhesion to the new views. Ricord warns us against numerous sources of fallacy, by which the inexperienced practitioner would be led astray. Thus, induration being laid down by him

as the touchstone of true syphilis, it becomes a vital point to determine what is and what is not induration. This is not by any means an easy matter. He describes two very different forms of it, either of which, he tells us, is equally symptomatic of infection. One is that well-known form with which we are all familiar as characteristic of the Hunterian chancre; the other variety, however, to which he has given the title of "Parcheminée," because of its resemblance to a piece of parchment beneath the fingers, is frequently so indistinct that we are told we must know by practice *how* to look and *where* to look for it, knowing which we shall never fail to find it. This may be quite true, but we imagine it will often be no easy matter to acquire the necessary *education.*

Again, in determining upon the nature of a primary sore, we should always bear in mind that the non-infecting chancre is liable to become, as it were, pseudo-indurated in consequence of the application to it of caustics or other irritants. Ricord states that there ought to be no difficulty in distinguishing between this and the genuine induration, to which latter he affixes diagnostic characters which always enable him readily to discover it.

Another singular source of error arises from the fact that a patient already affected with constitutional syphilis will not reproduce an indurated chancre. If subsequently inoculated, either naturally or artificially, with the syphilitic virus, such subjects will invariably generate a chancre with a soft base, which, although "*non induré,*" will yet be capable of imparting an indurated chancre to a "virgin subject."

We shall but instance one other source of fallacy: namely, that arising out of the possibility of a double infection, which might be prolific in errors of diagnosis and treatment. The case, with the recital of which we shall close our notice of M. Fournier's interesting volume, is singular as illustrating at once the abundant room for mistakes such a case would present, and in a striking degree the discriminating tact of Ricord.

"N. Alphore, aged 17, contracts a chancre towards the end of September. He presents himself at the consultation at the Midi, where the following state is established on the 3rd of October:—Indurated chancre on the corona; cartilaginous induration; multiple bi-inguinal adenopathy, hard and indolent. Dressing with aromatic wine; mercurial treatment. The 7th, same state. The 14th, improved state of the chancre (period of reparation commencing). 24th, the state of the patient is greatly changed. The chancre on the corona has become broad and hollow; its base is still greatly indurated. Moreover, there exists on the integuments covering

the penis a large chancre with an œdematous base, but without true induration; several small chancres, with a soft base, on the cutaneous surface of the foreskin. The patient affirms in the most formal manner that he has had no connexion with any woman since the time he contracted his first chancre. Are we, therefore, to attribute the new chancres to an accidental inoculation, to a contagion of vicinity? N. enters the Hospital on the 24th. In the first days of November appearance of acute adenitis of the left groin, presenting all the characters of the bubo peculiar to simple chancre,—suppuration; positive inoculation of the glandular pus. In the right groin, persistence of the adenopathy peculiar to the infecting chancre; glands multiple and indolent. In December, secondary affections; roseola, &c. Notwithstanding the denials of the patient, M. Ricord did not hesitate in ascribing the origin of the second chancres to a second contagion, resulting from a recent coitus. And, truly, a few days after he had entered the Hospital, N. informed me very confidentially that on the 15th of October he had had connexion with a woman named P——, whose address he gave me. 'On the following morning,' added the patient, 'the chancre on the corona had already commenced to extend itself; and two days afterwards the other chancres made their appearance.' I immediately went to the woman P——, and detected on her the existence of three large chancres, with soft bases, situated on the internal surface of the left labium, on the fourchette, and upon the folds at the entrance of the vagina. This woman had also infected another man, who was likewise the subject of soft chancres, with an acute bubo, and complicated with acute adenitis of the left groin."

The three very able, though unpretending, Lectures of Victor de Méric, which also lie upon our table, should have claimed an earlier notice in this article, did we not feel that in devoting our space to a statement of those new views of Ricord, we were adopting the readiest method of directing attention to those of his able commentator. Our author devotes his first Lecture to an elaborate examination and eulogy of these new views of the French school, and we cannot too strongly recommend it to those anxious to make themselves familiar with them. His second and third Lectures are devoted respectively to the constitutional and hereditary consequences of the disease. He essays, in the first of the two, to accomplish a feat which all practical men would hail as a great boon. This is nothing less than an attempt to simplify the classification of the secondary eruptive affections. Founding his idea upon the well-known liability of some of these to run into ulceration, whilst others have no such tendency, he adds:—

"We can, therefore, with some propriety use as a guide for diagnosis and treatment the following table:—

First Division.

Non-ulcerative, or deciduous.	Erythema and papules.

Second Division.

Ulcerative, or secreting.	Vesicles, pustules, and tubercles.

"I must confess my partiality for the practical lucidity which is afforded by the division into ulcerative and non-ulcerative eruptions, because ulceration denotes a considerable activity in the poison, and a want of resistance in the patient; hence, when we see the possibility of the formation of ulcers by the appearance of vesicles, pustules, or tubercles, we have made a discovery which is of paramount importance in the treatment. We are then bound to assail the poison with some energy, and to husband the strength of the patient. I may, perhaps, add that the manner in which syphilitic ulcers are mentioned is, in general, very unsatisfactory, for sufficient attention is not paid to the manner in which the ulcer has arisen."

The great practical value of this classification, as an aid to the correct therapeutical management of secondary eruptions, must be so manifest to our readers as to require no commendation from us; and of its correctness as an indication for treatment, our own experience forbids us to doubt. Indeed, we cannot too highly praise these practical Lectures on a subject for the knowledge of which M. de Méric, whom we are proud to claim as a former pupil of the Dublin school, is second to no surgeon in the great metropolis.

On Dropsy connected with Disease of the Kidneys (Morbus Brightii), and on some other Diseases of those Organs associated with Albuminous and Purulent Urine. Illustrated by numerous Drawings from the Microscope. By W. R. Basham, M. D., F. R. C. P., Physician to the Westminster Hospital. London: Churchill. 1858. 8vo, pp. 241.

Our knowledge of diseases of the kidneys is comparatively of recent growth, dating almost from the discovery of albumen in the urine at the close of the last century (1794), and from the clinical researches of Dr. Bright, published in 1827, by which this albuminous urine was connected with certain morbid appearances presented by these organs. But, though of recent growth, it has attained a degree of accuracy and precision, with regard to pathology, diagnosis, and treatment, surpassing that we possess of almost any other internal organs. Two circum-

stances have contributed to this, first, that there is, perhaps, no important organ in the body whose minute structure has been so completely and clearly demonstrated as that of the kidney has been by Mr. Bowman; and secondly, the morbid deposits or accumulations to which the kidney is liable occur, almost without an exception, in such a situation, within the uriniferous tubes, that portions of these materials are being continually washed out by the stream of liquid which is poured into the extremities of the tubes, and so they come within the sphere of our daily observation; thus affording the pathologist and the practitioner an opportunity of ascertaining the nature and tracing the progress of disease, which is not presented in the case of any other internal organ.

The contemplation of these circumstances it was that enabled Dr. George Johnson to predict the attainment of that accuracy that his own subsequent writings, in so eminent a degree, served to establish. He, as is now well known to all the members of the profession, recognised by careful microscopic examination several varieties in the sediments occurring in albuminous urine, and by connecting these with the general symptoms and the appearances found after death, discovered diagnostic marks between what he believed to be different forms of disease of the kidneys, characterized by the presence of albumen in their secretion.

The views of Dr. Johnson have been very generally adopted by subsequent writers, and the terms proposed by him, viz., acute and chronic desquamative nephritis, acute and chronic non-desquamative disease, and fatty degeneration, are in very general use.

The researches of Dr. Basham, of which he gives an account in the volume before us, are carried out in the same manner as those of Dr. Johnson, whose results they in a great measure confirm, the chief difference being, that Dr. Basham has been led to regard the several conditions described by Dr. Johnson as distinct forms of disease, as being merely the progressive stages of one disease, morbus Brightii; the difference is, however, not essential, as both inquirers recognise the curability of some of the conditions they describe, and agree in the main as to the treatment by which that degeneration of tissue, which, when once established, is admitted to be incurable, may be best prevented; and they equally acknowledge, that these conditions may run into one another; while the researches of Dr. Basham show very clearly the gradual stages by which this takes place, and will afford practitioners the means of forming both a diagnosis and a prognosis with increased confidence and satisfaction.

It is from the mode in which these investigations were carried on, that this arises. Regarding the microscope as holding the same relation to the diseases of the kidney that the stethoscope does to those of the chest, Dr. Basham examined with it, from time to time, the sediments occurring in the urine in all the cases of renal disease coming before him, as Physician to the Westminster Hospital, and inserted drawings of them along with the daily notes in the case-book. Of these drawings he has given well-executed copies, thus rendering his work one of great value to all who are engaged in treating cases of this description.

That this mode of investigation by microscopic observation at the bedside is the best for furthering our knowledge of this class of diseases, does not, happily, require to be enforced by any argument of ours; for though there are those who, from indolence, or even more unworthy motives, still sneer at "microscopes, and cells, and things of that sort," even as, when they were themselves young men, they had to encounter the jokes of those who laughed at their stethoscopes, tubes, and wooden trumpets,—the benefits derived from the use of the microscope are now too well known to require any advocacy; but if any argument were required, we should have no hesitation in referring to the present state of renal pathology as establishing its claims beyond controversy. Valuable, however, as is the information afforded by this instrument, it is only, as is very truly observed by Dr. Basham, by comparing the results obtained by its aid with the general symptoms, just as in the corresponding case of the stethoscope, that reliance can be placed on its indications. But while we thus fully recognise the great importance of microscopic observations, we cannot concur in the low estimate formed by Dr. Basham of the value to be attached to a knowledge of the specific gravity of the urine and the amount of albumen contained in it. It is true that its hourly and diurnal variations in these respects render the results of single examinations of little value; but, with proper precautions against these sources of error, we believe the information to be thus obtained is only second in importance to that afforded by the microscope.

The inferences to be drawn from the appearances revealed by the microscope are daily becoming more certain, as we acquire a more extended series of facts for their basis. The examinations that have been made, as to the alterations effected by disease in the fluids excreted from the lungs, have contributed much to the advancement of our knowledge in this respect, more especially as the diseases of these organs have been so thoroughly investigated by other means as to enable us to

check the results obtained by the microscope. We were then glad to find the following sketch of these observations in the preface to Dr. Basham's work:—

"Mucous membranes exhibit remarkable peculiarities in reference to these modifications or alterations of the epithelial cells, when thrown off under the influence of various morbid or disturbing causes; but our knowledge of these modifications of development has not hitherto been applied, beyond certain limits, to the elucidation of the nature or progress of disease. In affections of the air-passages, a pituitary, a mucous, a purulent, or a blood-stained excretion are, severally, evidence of disease, differing in intensity and kind. If the excretion from the mucous membrane in simple catarrh, in bronchitis, or in pneumonia, be microscopically examined, various modifications of cell-structure will be apparent, which are distinctly characteristic of these diseases. In catarrh the healthy epithelial cell is shed in abundance, but accompanied by other cells, which appear to be atrophic, or abortive cells of the same class. They are usually more granular than the standard epithelial cell, and, in place of a single nucleus, several distinct nuclei appear collected together within the cell-wall.

"These have been variously named by different observers. It is the cytoid corpuscle of Henle, and bears a close resemblance to the lymph or colourless blood-corpuscle, except that it is much larger when occurring in catarrhal excretion. Associated with these in the severer forms of catarrh, in those approaching to the limits of inflammatory action, may be seen the compound inflammation-corpuscle of Gluge. This is a large ovoid or spherical cell, containing numerous resplendent nuclear granules. When the cell-wall is ruptured or dissolved, these nuclear granules remain clustered together in a grape-like mass; hence they are called botryoidal, or, by some writers, mulberry, bodies. The mucus or fluid accompanying catarrhal exudation also exhibits many isolated resplendent granules, which are considered as free nuclei. These microscopic objects occur in a clear, viscid fluid—called mucus or mucosin—which appears for the most part to be derived from the rupture or breaking up of the cells whose nuclei are distributed through it. In bronchitis the excretion from the mucous surface is the product of a more energetic disturbing cause. The epithelial cell has altogether disappeared. The field of the microscope presents numerous cells, spherical in shape—uniform in appearance and size—smaller in diameter than the epithelial cell—somewhat granular on the surface of the cell-wall—and displaying within a trefoiled or reniform nucleus; these are the exudation-or pus-corpuscles. The fluid which accompanies them is less viscid and tenacious than the catarrhal fluid, and has, moreover, a faint alkaline reaction. The more purulent the secretion, the less viscous is the accompanying fluid, and practically it is well known that in severe bronchitis, as the attack subsides, the sputa become more viscid, and ultimately return to conditions not unlike

those observed in simple catarrh. In the early stage of pneumonia, the excreta consist of epithelium in small quantity, mixed with exudation and compound inflammation-corpuscles in hourly increasing proportions, the whole mixed with a fine granular material, stained more or less with hematin, and with which not unfrequently a few isolated blood-corpuscles are mixed: this is the true croupous exudation. As the disease advances, these characters are lost, and these cells give place to an abundant formation of pus-corpuscles; and the sputum then acquires many of the qualities characteristic of bronchitis. From these data we are justified in concluding that the respiratory mucous surface, under the influence of disease, gives off products differing according to the nature, intensity, or duration of the disturbing cause. We have less need for the aid which these facts offer, and are less dependent on microscopic examination in diseases of the respiratory organs and passages, because the successful manner in which the stethoscope has been applied to the investigation of the morbid phenomena of this region, leaves a minute acquaintance with the microscopic character of the excreta unnecessary. But from other mucous surfaces similar products are cast off according to the nature and intensity of the disease. The present work is an effort to apply these facts to the investigation of diseases of the kidney; and to ascertain if the products thrown off from the tubuli uriniferi during the progress of disease possess any similar specific characters, from which correct deductions might be drawn as to the nature, degree, duration, or stage of the renal disorder."

The principles by which he has been guided in his researches being thus explained, Dr. Basham proceeds to enumerate, as follows, the objects that are met with, from time to time, in albuminous urine, and then explains their mode of production, and their relation to the diseased action:—

"Fibrinous casts, containing blood-discs (blood-casts).

"Granular casts, containing epithelial cells and blood-discs.

"Finely granular casts, containing epithelial cells, either natural or undergoing transformation.

"Finely granular casts, containing compound granule-cells and free nuclei, and occasionally pus-cells.

"Pus-casts,—casts composed exclusively of pus-cells are very rare.

"Hyaline casts, containing epithelial cells, either natural or in a state of change.

"Hyaline casts, containing resplendent granules, free nuclei, and here and there an epithelial cell.

"Hyaline casts, containing compound granule-cells, free nuclei, and disintegrated cells.

"Hyaline casts, containing large fat-granules, and grape-like clusters of nuclei, having an oily appearance.

"Hyaline casts, without admixture or structure of any kind.

"Epithelial cells, isolated or in groups, from the uriniferous tubes, the pelvis of the kidney, ureters, bladder, urethra, or vagina.

"Amorphous flakes of a granular material, stained of an orange-red by the hematin, sometimes entangling blood-discs, more frequently without.

"Blood-corpuscles, always single, never in rouleaux.

"Pus-cells, isolated or massed together in groups.

"Compound granule-cells, isolated resplendent granules (free nuclei).

"Botryoidal clusters of granules, or nuclei (disintegrated compound cells), and diffuse granular matter.

"Crystals of uric acid, rhomboidal or lozenge-shaped, occasionally columnar, sometimes amorphous (grit).

"Crystals of oxalate of lime (octohedra).

"Crystals of the triple phosphate.

"Vibriones.

"Spermatozoa."

The epithelial cells, accompanying or forming part of many of these various deposits, may have been derived from any of the various parts of the urinary organs, and present the characters peculiar to each. The greater part, as well as the more important, are, however, derived from the cortical portion of the kidney, and the appearances presented by them vary with the state of the organ. Some may have the normal characters, but generally they are more or less transformed. The first departure from the healthy type is its becoming more granular, the single nucleus being either obscured, or accompanied by other nucleus granules. This granular condition Dr. Basham regards as the result of a hyperemic or inflammatory condition of the mucous membranes:—

"Some observers are disposed to consider that these granule-cells arise from the fatty degeneration of pus-cells; but a careful examination of the mucous fluid in the mildest forms of catarrh, where no pus-cells have pre-existed, will, I think, prove that one of the earliest manifestations of a hyperemic condition of a mucous surface, accompanied by a casting off of epithelial cells, is the metamorphosis of some cells and their departure from the normal type, and their tendency to become abortive, or what appears to constitute a fatty degeneration. . . . . .

"The pathological import of these granule-cells has, by different observers, been variously estimated. By some they have been considered the product of an inflammatory process, and Gluge has designated them as compound inflammation cells. I do not express any more decided opinion on this point than that, so far as the renal structures are involved, their presence is usually preceded by a state of inflammatory congestion, and that proportioned to their number,

and the nuclear or fatty metamorphosis of the epithelial cells, does the degenerative process advance in the kidneys; so that an examination of the sediment in albuminous urine at certain intervals will exhibit this transformation, either advancing or receding, and an estimate may accordingly be made with some degree of certainty of the state of the kidney during life."

As the disease advances, the cell walls may give way, and numerous highly resplendent granules, isolated and scattered through the casts, are constantly met with; but these are of little importance compared with groups or grape-like clusters of granules, hence called botryoidal, but which occasionally assume a crescentic shape. These are groups of nuclei without any cell wall, derived from cells which had undergone a higher degree of transformation.

"The pathological import of these clusters of nuclei without any visible cell-membrane has, I believe, in relation to the kidney, never been satisfactorily made out. It has appeared to me, as I shall endeavour to prove in the sequel, that these several forms of granule-cell, compound fat-cell, molecular fat-cell, fat aggregate globules, or by whatever other name they may be described, represented a deteriorated or atrophic state of cell-development, which eventually becomes so powerless that the cell-membrane disappears, nothing remaining but a heap of nuclear molecules, which, accumulating in the tubes and Malpighian bodies of the kidney, eventually constitutes a true fatty degeneration of the kidney. These grape-like and crescentic clusters of granules in the urine are significant of a subacute process, and imply an atrophic or degraded state of cell-growth, and when they become daily more numerous are very unfavourable indications.

"The large compound granule-cells, possessing the characteristics of Gluge's compound imflammation globule, so far as the urinary sediment exhibits them, I believe, never make their appearance but as the sequel to a state of hyperemia. These cells represent a stage succeeding to one of inflammatory engorgement, and may at all times be considered as indicative of a low, chronic, or subacute state of inflammation. They are always numerous in acute morbus Brightii, or that form of renal disease which produces the large pale-white kidney. But they also are, in the acute form of the disease, almost always associated with cells which present a distinctly granular appearance, and within which no nucleus, but only a diffuse fine molecular, or finely granular material, is contained. On rupture of the cell-wall the finally granular contents are diffused over the field.

"It has appeared to me that the finely granular material mixed with free nuclei which appears to constitute the contents of the tubes, and even of the Malpighian bodies in the large white anemic kidney of acute morbus Brightii, is derived partly from the disintegration of these granular cells, and partly from a diffuse inflam-

matory exudation, which in these large kidneys is interstitial as well as intratubular. For these reasons, I am reluctantly led to doubt the appropriateness of the term desquamative, or non-desquamative, as applied to some forms of morbus Brightii by Dr. G. Johnson. I have arrived at this opinion by devoting much attention to the microscopic character of the sediment in many cases of renal dropsy, making drawings, almost daily, of the casts and cells, and watching and recording whatever changes might present themselves, whether in favourable or unfavourable cases; and in the latter, whenever possible, comparing the cell-structure and contents of the tube with the cells and casts present in the urine during life."

This shedding of epithelium Dr. Basham regards as constant in Bright's disease, and in those cases described by Dr. Johnson as non-desquamative he thinks the stage of desquamation had passed before they came under notice; and, therefore, he objects to the term non-desquamative nephritis.

On another point of more importance Dr. Basham expresses the following very decided opinion; but we must say that our own experience inclines us rather to agree with those who believe that hyperemia is not a *necessary* element in the morbid process:—

"A careful attention to the earliest symptoms of the several forms of morbus Brightii will establish the fact that every case has its origin in a period, if not of inflammatory congestion, at least of hyperemia, or passive congestion, or stasis.

"It is this state of hyperemia which first embarrasses the renal function; some of the constituents of the blood either transude, or direct rupture of the Malpighian capillaries takes place, and blood-corpuscles appear in the urine, not always, however, proportionately to the amount of inflammatory engorgement. In some cases the presence of blood can only be detected by the microscope; in others it is palpable to the unaided eye. This hyperemic stage is followed by a greater or less exudation of epithelial cells, and with modifications of cell-structure, varying with the intensity of the disturbing cause. In curable and tractable cases the amount of epithelial exudation is trifling, and only lasts for a short period. In some varieties of the disease but little epithelium is thrown off, and what appears in the urine consists of abortive or compound cells, clusters of nuclei, and hyaline casts. In other forms, the epithelial exudation continues for a longer period, and is apparent in some modified form almost to the last hour of life."

In the third chapter Dr. Basham discusses the nature and origin of the tube casts. The *fibrinous casts* containing blood discs he regards, with Dr. Johnson, as the result of hemorrhage from the Malpighian capillaries, and the blood becoming coagulated in the tubes; but, as to the *granular casts* containing epi-

thelial cells and blood discs, he dissents from those who regard them as coagulated fibrine, and agrees with those Continental writers who regard them as true croupous exudations. The finely *granular casts*, however, he thinks, cannot be considered as the product of a croupous form of inflammation. They are derived, he says, from the disintegration of atrophic epithelial and granule-cells, and are formed in a manner similar to the viscid mucous secretion in catarrhal affections of other mucous membranes.

The hyaline, waxy, or transparent casts, and the oily or fatty casts, next come under notice. The nature and origin of these have hitherto been involved in much obscurity. Dr. Johnson does not attempt to resolve this doubt; but Dr. Basham has, we think, offered a very satisfactory account of them, and also clearly refuted Lehman's statement that they consist of the membrana propria (basement membrane?) of the urinary ducts. These casts, Dr. Basham says, bear a close resemblance to the glairy viscid mucus in mild but chronic catarrh, and they are produced from the viscid hyaline fluid that is contained in all cells between the nucleus and the cell membrane. On the breaking up of the cell membrane, this becomes diffused, and is moulded in the tubes, from which it is washed out by the urine, the chemical action of which on them is such as to render them permanent, that is, prevent their coalescing to form a uniform layer, as this hyaline fluid does in other situations. These casts may have a graver import than any of the others, but this depends on the cells with which they are accompanied, and the period at which they appear.

"The significance of these hyaline or transparent casts will depend on the cell-structure which accompanies them, and on the relation, as to time, which other kinds of casts bear towards them. If they appear in the urine very shortly after the period of hematuria, they may be accepted as indicative of a state somewhat analogous to a catarrh of the renal tubes, and the case in all probability will prove remediable and tractable. In such cases here and there an epithelial cell is seen, and perhaps a compound granule-cell, but these are not numerous, and they do not increase. In other cases these glairy moulds of the tubes contain numerous abortive cells, in almost daily increasing numbers, compound granule-cells are always present, clusters of granules (botryoidal and crescentic) and free nuclei are also seen. These appearances are significant of a chronic subacute process, which, slow as it may progress, is but too often irremediable. In the third variety of these hyaline casts, few or no epithelial cells are seen. The appearances are characteristic of broken-up cell-structures, clusters of granules having more and more the appearance of fat granules, many acquiring a large size,

and becoming even oily from the high refractive power they exhibit. In the most advanced cases the cast seems made up of these fatty and oily materials, and hence has acquired the name of the fatty or oily cast. These indicate the highest state of fatty degeneration.

"There is yet one other variety of hyaline or transparent cast, which has been called, from the absence of all structure visible in it, the waxy cast—certainly from no resemblance which it has to wax,—and which, from the difference in the diameter of them, may be formed either in the smaller convoluted tubes, or in the larger straight tubes of Bellini, the origin and nature of which has not yet been determined."

The value of the whole series is briefly summed up as follows:—

"Attention to the microscopic character of these casts will at any time enable the practitioner to estimate the nature and intensity of the disease, its advance or decline, its form, and its probable termination. The blood casts represent the period of active hyperemia and hemorrhage, the coarsely granular epithelial cast, with its compound inflammation corpuscles, and accompanied by amorphous granular flakes, stained with hematin, the period of inflammatory exudation; the finely granular, semi-transparent casts, with scattered epithelial and granule-cells, the subsidence of that stage. Transparent casts, with compound cells, with isolated, resplendent molecules, and grape-like clusters of granules, represent a stage of chronic subacute disease of grave import; and if these casts become more and more loaded with large and gradually increasing fat-granules, and even oily drops, the progress of fatal fatty degeneration is clearly marked.

"In thus treating of the subject of the degeneration of cell-development in the kidneys in morbus Brightii, it must not be supposed that these deteriorating conditions are limited to those organs. It is in them—from the nature of the materials passing out with the urine—that we are enabled during life to decide on the nature and character of the morbid process going forward in those organs. But there is reason to believe that the nutrition of most of the textures and organs of the body proportionately fails; and although not so apparent, because not manifested in a manner capable of being determined or demonstrated during life, nevertheless, that the tissues of every organ become more or less degenerate and inefficient for the purposes of life. It is certain that the cells of the liver are invariably loaded with fat in all fatal cases of morbus Brightii. And in every case which I have examined, the heart-fibre has exhibited the microscopic character of atrophic and granular, fatty, degeneration. It is worthy of remark, how frequent are the maculæ albidæ on the exocardial surface of the heart in cases of Bright's disease. They seldom amount to more than a milky opalescence of the serous surface, and the frequency of atheromatous deposits in the coats of the arteries, particularly in the aorta, must be familiar to every pathologist."

This progressive transformation of the epithelial structures is then regarded by the author as evidence of a diffused and general degeneration and decay, as well as of a local and special disease of the kidneys, and on this he founds his plan of treatment, which consists in the adoption of measures aiming at the restoration of the blood to a condition favourable to a more healthy cell development. To attain this desirable object, the hydremic or watery state of the blood must be first reduced, and even while that is attempted, the impoverished state of this fluid must be replenished and enriched by the influence of ferruginous preparations. But while a just confidence is placed in the remedial efficacy of chalybeate medicines, these will little avail if the system be not supported by a nutritious and generous diet, co-operating with a moderate but essentially necessary amount of stimulants. These principles refer chiefly to the chronic stages of the disease; but even in the acute, as soon as the symptoms of febrile disturbance have subsided, they may, Dr. Basham says, with advantage be applied; and though he believes antimonials to be very serviceable in the very early stages, when blood-casts or fibrinous casts are present in the urine, and there are constitutional and local signs of inflammation, he urges that the faintest sign of the subsidence of these justifies a modification of remedies, and marks a necessity for improved diet and a moderate allowance of wine.

We have thus sketched the principles deduced by Dr. Basham from his clinical researches, and which he fully explains in the first three chapters of his book. The remainder consists of the details of the cases themselves, each of which is in itself a study; and whether we have regard to the minuteness of observation and accuracy of delineation displayed in the accounts given of the cases themselves, or the masterly skill with which the important points of each are singled out for observation in the appended "remarks," or to the admirable manner in which the progressive changes in the microscopic characters of the sedimentary deposits are displayed in the plates, we have no hesitation in recommending the book to our readers, as one whose perusal should not be omitted by any one anxious to treat cases of albuminuria with comfort to himself, or advantage to his patients. Dr. Basham has adopted the only mode by which medical science can be cultivated with advantage. He has calmly, patiently, and perseveringly interrogated nature; and he has in this work conveyed to us the results he has obtained, on the whole clearly and concisely; but occasionally his meaning is somewhat obscured by repetition and want of arrangement.

On the Organs of Vision: their Anatomy and Physiology. By Thomas Nunneley, F. R. C. S. E., Lecturer on Surgery in the Leeds School of Medicine, Senior Surgeon to the Leeds General Eye and Ear Infirmary, &c. London: Churchill. 1858. 8vo, pp. 373.

When we received Mr. Nunneley's book, we thought that our task of reviewing it would have been an easy and a pleasant one, but we have been sadly disappointed. The book, with one exception, is a compilation of unfinished and imperfect essays on various subjects, hurried together to form a work, entitled the "Organs of Vision." It opens with a chapter "On Sensation and the Senses generally," in which the author thinks that Sir C. Bell, Dr. Abercrombie, Dr. Thomas Brown, and other equally great men, have fallen into error as to the existence of a sixth or "muscular sense," from not bearing in mind the four following facts, viz.:—

"*First*, that the nerves of touch have no distinctive difference in structure or connexion from those of ordinary sensation; *secondly*, that nerves of ordinary sensation are distributed over all parts of the body, especially to the muscles, which, next to the skin, appear to be more liberally supplied with them than any other of the tissues of the body; *thirdly*, that no other nerves which, either from their structure, mode of distribution, or peculiar connexion with the sensorium, may reasonably be supposed to be endowed with other functions, can be detected passing into the muscles; and lastly, that ordinary sensation is sufficient to account for all the phenomena and ideas referred to the so-called muscular sense."

Now, although we confess that there is a good deal in the paragraph we have quoted against the existence of this sixth sense, we think it would have been more judicious in the author to have entirely omitted any reference to the subject, than to have entered upon so difficult and abstruse a question as unquestionably it is, and to the consideration of which he has only devoted a few lines.

The second chapter is certainly better written than the first. In it are contained some interesting remarks "on the feelings and ideas ascribed to, and derived from, the sense of vision." Milton's glorious ode to light is quoted at length, as the writer justly remarks:—

"Let him who, from his full appreciation of, and enjoyment in, the delights of the senses, his almost inspired power, who from experiencing the total loss of it was more competent than any other person who ever lived to express the feelings attendant upon blindness, speak. For none but he could so feel and write."

Cheselden's case of congenital cataract—which has been referred to by every subsequent writer on metaphysics in triumph "as by direct and unexceptional experiment it confirmed the deductions which had previously been arrived at by the most careful and laborious investigations into the functions of the different senses, and an analysis of the ideas received by them"—is correctly objected to, because, first, it has been too often assumed that there was complete blindness prior to the operation; second, that afterwards there was perfect vision; thirdly, that the acquisition of sight is not sudden, but progressive; and lastly, that no observation can be made immediately after the operation, nor, in fact, for some time, until absorption has afterwards taken place. Mr. Nunneley here relates some interesting experiments on a similar case to the foregoing.

The next chapter, on Optics, although occupying fifty-five pages, may, we think, be dismissed in a few words. It is, in fact, as stupid and useless an essay as we ever read. All we can say of it is, that it certainly contains no mistake, for mistake implies some originality of idea, or of conception, or of the treatment of the subject. The woodcuts, even, are second-hand, borrowed from Brewster's Treatise on Optics in Lardner's Cyclopædia.

The fourth chapter is unquestionably the best written part of the book. It gives a good account of the anatomy of the eye and its appendages, detailing at length the most recent discoveries in minute and microscopic anatomy. The plates must be good, as they are nearly all Arnold's, whose book, we regret to say, is not as often referred to by anatomists as it ought to be. Mr. Nunneley has taken great pains to ascertain, by a series of experiments, the exact measurements of the globe of the eye, the lens, and the curve of the cornea, both in man and the lower animals, a perusal of which will amply repay those interested in this subject, but which to the majority of our readers would only prove wholly uninteresting; and as we are anxious to make some remarks on the comparative anatomy part of the book, we must conclude our brief notice of this chapter.

How strangely unequal is this work! In former pages tediously minute, and abounding with tables and lists so comprehensive as to strike the reader with the idea that patient research and unexampled industry were brought to bear upon the introduction of a volume far in advance of the day; here, however, we find numerous shortcomings, and, from the slight and puerile manner in which the subject of the comparative anatomy of the eye has been handled, we might be justified in

supposing it a compilation from some popular prize essays of the last century, so many omissions, so many illogical reasons, and not a few absolute errors. This is the more unfortunate, as, by the few pages devoted to this part of the subject, the author's labours are likely to be judged, and few indeed will be the readers who will be inclined to look upon it as a mere supplement to what has gone before. Had the writer checkéd his pen ere he descanted on the eyes of animals, an essay worthy of the subject and in advance of our microscopic knowledge had been produced; but, by adding this and the next chapter, he seems to have aimed at producing a manual at once comprehensive and minute; and in this he has failed signally. That a perception of light is found in most animals, even the most minute, must be apparent to every one who has studied the habits of the lower orders of life. Who has not watched with delight the expansion of Actinia, under a sudden gleam of sunshine? or the gradual unfolding of the ciliary arms of a Polype? This general perception of light is apparently independent of special organs, and is found to exist in many animals in which the eyes are unmistakably absent, although the pigmentary dots in many of the lowest forms of animals formerly classed among the organs of vision have, in many instances, far different functions, it is generally acknowledged that true eyes are to be found in many of the acephalous Molluscs, some Radiata, &c. We believe that there are true eyes in the Gasteropods. The author's description fails to convey the variety of position and size found in many of these animals, and according so truly with the variety in their habits and functions, some few of them enjoying an aerial existence, most others, aquatic; but whether the eyes differ as they do among insects, we are left to guess. Among spiders, we find a different disposition of the simple eyes, according to the manner in which these wonderful creatures seek their prey. In the Libellulidæ, although the author has expatiated on the number of facets of their most lovely compound organs, no mention is made of their simple eye-dots, found in the form of a triangle in front of their more conspicuous organs of vision; and too much stress also appears to be laid on the shape of the facets of insect eyes, as we have preparations in our possession in which the hexagonal form is greatly departed from. The eye of the cuttle-fish is well described; we should have been better pleased, however, had Dr. Powers' description of the arrangement of the nervous fibres of the optic commissure been given. In the Vertebrata the study of the organs of vision is more under command, the interpretation of the structure much easier, and a comprehen-

sive induction of the differential relations under which vision is enjoyed would do much to clear up many difficulties in its physiology. A philosophic view of the subject should embrace all the varieties of position under which this sense may be exercised. All the maximum and minimum effects of light and shade, in fact every objective circumstance calculated to influence the result, and, viewed as an organ of animal life, the prey of the animal, its habits, and the activity or sluggishness of its existence, should all be taken into consideration. In the account of the eyes of fish Mr. Nunneley has omitted many important peculiarities, and in illustration has strangely noticed the enormous thickness of the posterior portion of the sclerotic coat of the eye in cetaceous Mammalia. The existence of a nictitating membrane in the eye of some sharks, called Nictitants by Müller, is an omission, and we also must state that true eyelids with muscular fibres are to be found in some fish. We think, too, that the assertion that the lens in all fish is spherical, is far too general for adoption; the oblique and extra axial entrance of the optic nerve, and the asymmetrical form of the globe of the eye in some flat fishes, might have been more dwelt upon, particularly as minute measurements of the eye of the Hippoglossus are to be found in a former part of the work.

We are inclined to the view which the author takes of the choroid gland; its vascular nature seems to point it out as one *retia mirabilia*, and its connexion with the accessory bronchia may furnish it with a rich supply of blood; this is well seen in the carp. We would like to have had some reference to the falciform process (double, we believe, in the conger) to be found in some fish. The choroid gland is not found in all osseous fish, as in the Seleucus, Muræna, &c., although an inference to the contrary may be drawn from an expression of the author. The lachrymal gland is found (though not mentioned in the book) in serpents, especially in the genus Coluber; it also exists in the dolphin, yet the author asserts that it is absent in the Cetacea and other aquatic animals; we have found it in the *Phoca vetulina*. In Mammalia the omission of notice of the tapetum, an appearance which we believe due to a certain peculiar membrane, and something analogous to which is found in the eyes of some insects, is not once referred to. The peculiarities of the eye of the Ornithorynchus, the bony plate in connexion with the sclerotic, and the absence of the pecten in the Apteryx, ought to have claimed some attention. Such are some of the facts connected with the comparative view of the organs of vision which we think should be found in Mr. Nunneley's book; and we fear, from a marked want of due and necessary details on the subject,

he will be judged to have paid less attention to the more important part of his subject than he really has done. In his microscopic descriptions he seems to be comprehensive and exact, and has added much to our knowledge of structure; and an attentive perusal of this portion of the book is well worthy of the attention of the student. It is that on which the author may well rest his reputation. The illustrations are apparently the work of an inferior hand, and do not dovetail or correspond with the exact and minute details of histological anatomy to be found in the earlier pages of the book.

Précis Théoretique et Pratique de L'Art des Accouchements. Par le Professeur Scanzoni. Traduit de L'Allemand par le Docteur Paul Picard. Avec 111 Figures dans le texte. Paris: Victor Masson. 1859. Small 8vo, pp. 405.

Strange to say, this work has neither dedication, preface, nor introduction of any kind, either from the author or translator. It is easy to perceive, however, that the book is designed for the use of students, being nothing more than a condensed manual of theoretical and practical midwifery. It is written in a concise, didactic style, contains little discussion upon controverted points, and almost no reference to "authorities." It seems to be, in fact, a brief statement of the author's knowledge and opinions respecting the different subjects that come under examination. Some of our readers, perhaps, may ask who the author is, as the name of Scanzoni is little known to the bulk of the profession in this country. If we mistake not, he is Professor of Midwifery at Wurtzburg; and, although not the author of any remarkable discovery or book, he yet enjoys great reputation throughout Germany; and, if we may credit newspaper report, got a fee of five thousand pounds for going to St. Petersburgh to attend the Czarina. And surely the man who delivers the Empress of all the Russias *must* be at the zenith of obstetric fame!

The author makes a very clear, systematic division of his subject, without falling into the errors (so common with French authors) of artificial refinement of distinction and complex minuteness of subdivision. The work is divided into five parts.

Part I. The physiology of pregnancy; the growth and development of the embryo; the anatomical changes in the sexual organs consequent upon conception; the nutrition and func-

tions of the fœtus; the diagnosis and duration of pregnancy, &c., &c., are investigated in this division.

Part II. On the "Physiology of Parturition," treats of the presentations and positions of the fœtus, the mechanism of parturition, the phenomena of labour, the stages of labour, and general rules to be observed by the accoucheur when called to a case of labour, &c. Under this last head mention is made of the *position* of the woman for delivery, about which there is a wide difference of opinion between British and Continental accoucheurs. When, from the violence of the pains, or the straitness of the vaginal orifice, there is danger of the perineum being torn, the author advises us to deliver the woman on the *left side*, and to support the distended perineum with the right hand. "In this position," he says, "the pains are less violent, the head advances more slowly, and the central orifice yields more easily." Elsewhere he recommends a kind of "sanguinary" (*sanglante*) dilatation of the vulva where this orifice is so contracted or undilatable as to render laceration inevitable under ordinary treatment. It consists, not in dividing the perineum, as Michaelis suggested, but making incisions in the greater labia in a direction from the fourchette towards the ischiatic tuberosities. This operation he describes as being almost painless, causing little hemorrhage, and being very successful for preserving the integrity of the perineum.

Of the *binder*, which is here considered so important a part of the paraphernalia of the lying-in room, no mention whatever is made, except in cases of *post-partum* hemorrhage, when its employment is recommended as a means of keeping up contraction of the uterus. This we regard as a full admission of one of the greatest advantages claimed for the binder, and one that should encourage us to use it in *all cases*.

Part III. is on the "Physiology and ordinary management of Childbed." Among other practical injunctions here laid down is one which universally prevails among the vulgar in this country, viz., on no account to let a newly-confined woman go to sleep if there be the least tendency to hemorrhage. We have never known an instance where hemorrhage to any extent took place that the patient did not awake: but, even granting this, we should always ascertain positively, from time to time, whilst the patient was sleeping, that hemorrhage, internal or external, was not going on. With this precaution, we have never prevented a patient sleeping, if she felt so disposed; and on physiological grounds it is calculated to be serviceable in preventing or arresting hemorrhage; because sleep tends most power-

fully to restore the nervous energy, and because that during sleep the rapidity of the circulation is reduced.

The use of purgatives is dismissed in a few words: and he thinks it is of no importance the bowels being confined for three or four days after delivery. Provided they have been well freed during the labour, we see no objection to this rule being followed, as we are strongly of opinion that harm is often done to mothers, as well as to infants, by the too prevalent practice of giving purgative medicine soon after delivery. Instead of exciting the action of the bowels, we should be more solicitous, as regards the mother, to excite and keep up the action of the *skin*.

Part IV. is, perhaps, the most important division of the book, comprehending, as it does, the pathology of gestation and of parturition. The fifth and last part contains a description of the different obstetrical operations. To have made the book complete, another part on the pathology of the puerperal state should have been added; the omission of this renders the manual imperfect, and, we would say, unfinished. For surely the diseases of childbed are entitled to consideration in a work on "*L'Art des Accouchements*" fully as much as the diseases of gestation. These latter are described in Part IV. with the utmost possible brevity. M. Scanzoni fully admits, not only that *apparent* menstruation may take place during pregnancy, but that "the periodic maturation and separation of the ovum in the ovary, —the physiological acts which are the principal causes of menstruation—take place during gestation." He says he has strong reasons for holding this view. What these reasons may be, we are not informed: but, till satisfactory reasons are produced, we believe that few obstetricians will adopt his statement on the point in question, since it has been demonstrated, first, we believe, by Mr. Whitehead, of Manchester, in numberless instances of apparently normal menstruation during pregnancy, that the discharge of blood was from the abraded vagina or os uteri, and not from the cavity of the uterus at all. This discovery at once reconciled the strong arguments of anatomists *against* its occurrence, with the clearly ascertained facts of practical observers, in favour of its occurrence. Speaking of *placenta prævia*, he observes: "The ordinary cause of this vicious position is the softening of the uterine parenchyma, joined to the augmentation of the uterine cavity, in consequence of acute leucorrhœa and numerous pregnancies." Now, with all respect for so eminent an authority, we must beg leave to pronounce this to be the most flimsy, gratuitous assumption, without even

the remotest semblance of probability to sustain it—just, in fact, the sort of medical reasoning that one would hear from the most superficial reasoner. For the treatment of hemorrhage resulting from this abnormal attachment of the placenta, plugging the vagina, rupturing the membranes, or turning the child, and so accomplishing delivery, are the means he relies on, according to the circumstances of each particular case.

After having described the different modes of effecting the reduction of a prolapsed funis, M. Scanzoni candidly admits that these attempts frequently issue in failure, and his concluding remarks on this subject contain this salutary precept, which he says should never be forgotten: viz., not to have recourse to any expedients which may endanger the life of the mother. The soundness of this precept cannot be questioned. The directions for the operation of turning are most ample, indeed absurdly minute, we would say, in a treatise designed for pupils.

The forceps used and recommended by the author is the long double-curved forceps of Naegèlé. The instructions for their use exhibit the same tedious minuteness of detail as those for the operation of version. The perforator which M. Scanzoni is in the habit of employing is that of Leissnig, which is itself a modification of Joergs. It is, in fact, a species of trepan, and nothing else; and to wound the patient with this instrument would evince, he says, extreme unskilfulness, and the man who did so should renounce being an accoucheur. In this we entirely concur, as we never knew any accident happen the mother in the using of the *perforator*, and cannot conceive such to happen except through the most blundering awkwardness.

Speaking of the large mortality which has followed the operation of craniotomy (in continental practice), he expresses his conviction that the results would be more satisfactory if the trepan and cephalotribe were more generally employed in preference to the perforator and crotchet,—if the operation were not undertaken in cases of *extreme* pelvic deformity;—if as much regard were paid to the general state of the mother as to the deformity;—if the operation were not postponed till the mother is exhausted by ineffectual attempts at delivery; and, in short, if practitioners were not influenced by the absurd rule which forbids, under any pretext, perforation of the living child.

He concludes by saying he does not know of any means by which this operation is to be superseded.

He seems to be strongly impressed with a sense of the extreme danger of the Cæsarean section, and states that the number of instances where the woman has been saved by this operation are even more rare than is generally admitted. "For my own

part," he says, "I have taken a firm resolution never to perform this operation when I have at my disposal any means whatsoever less dangerous for the mother."

Did time permit, we would gladly have given a more extended notice of this book, out of respect to the distinguished reputation of its author; but it was received at so late a period before sending these sheets to press, that we have been compelled to present only a very desultory sort of analysis of its contents. We should not omit to mention that it is abundantly illustrated with woodcuts of a good description. Some of these are original, and in others we recognise familiar plates from Smellie, Moreau, and Churchill. Lastly, the book has not only a table of contents, but, what few continental works have, a tolerably good alphabetical index.

The Hygienic Management of Infants and Children. By T. Herbert Barker, M. D., &c. &c. London: Churchill. 1859. 8vo, pp. 115.

Third Report of the Clinical Hospital, Manchester. By James Whitehead, M. D. London: Churchill. 1859. 8vo, pp. 117.

Nature has been very bountiful to young children, after all. When we see the injudicious management, ridiculous dress, and injurious diet, even of many of the better class, and the filthy homes, impure air, scanty dress, insufficient and unwholesome food of the poorer class, so far from wondering at the death-rate of early life, one is rather surprised that so many escape. There is one element possessed in early life by the children of the poor to a greater extent, perhaps, than those of the rich, which may possibly have some sanitary effect. Any one who will watch a lot of poor little children at play in the street, or, it may be, in the gutter, cannot doubt that their freedom from restraint is present happiness; and as young children, thank God, have no forethought, the happiness they enjoy is in its way healthy. The children of the rich, on the contrary, are always under restraint, and however right as discipline it may be, and however it may ultimately contribute to their happiness, one cannot doubt that it diminishes present enjoyment. Of course, our observations apply fully only to young children before they are of an age to make an immoral use of their liberty.

Admitting all this, however, the large mortality and extensive sickness among the young cannot be denied, and as much

of this is due to mismanagement, and might be prevented, we are always glad to welcome books like Dr. Herbert Barker's, which take a sound, common-sense view of the matter, and are intelligible to the public; and we shall endeavour to lay his views before the profession very much in his own words.

After showing the mortality of early life, he divides the causes of that mortality into : 1. Original constitutional debility, or hereditary disease. 2. Acute diseases. 3. Want of sanitary measures, giving rise to pollution of the atmosphere. 4. Mismanagement with regard to diet and regimen in the nursery—the latter being the subject he has undertaken to treat.

First, as to diet, about which, if the mother be healthy, no medical man can hesitate. The mother's milk is the natural food of the infant, and next, that of a wet-nurse:—

"In cases where the mother cannot, or, on medical authority, must not suckle her own child, the choice of a suitable wet-nurse will require consideration. If we are careful of the quality of animal food given to adults, how much more studious ought we to be in selecting the first nutriment of the sensitive infant! In age, constitution, and temperament, it is well that the wet-nurse should, as nearly as possible, resemble the mother: of course, with the exception of any morbid traits in the latter. Sound health, regular appetite, clear complexion, good temper, freedom from every sign of cutaneous or scrofulous diseases—these are some of the chief marks of the eligible wet-nurse. Her milk should be thin, and of a bluish-white colour and sweet taste; and, after standing awhile in a vessel, should throw up a considerable quantity of cream. If dropped in water, it should assume a light cloudy appearance, and not fall to the bottom in thick drops. The diet of the wet nurse should be generous, yet temperate. Indulgence in ardent spirits must be strictly prohibited; and, if stimulus is required, a moderate quantity of pure malt liquor, such as Bass' or Allsopp's ale, may be allowed. When the nurse is—as she should be—competent to the discharge of her duty in nourishing the infant, no other kind of food should be given. To give solid food, such as *bouillie* (flour boiled in cow's milk), while there is a good supply of far superior nutriment in the breast, is a gross folly.

"Mauriceau has recorded the case of a healthy child which was fed, on the third day after its birth, with *bouillie* (or flour boiled in milk). The consequence was, that the infant died under a severe attack of colic attended with convulsions. There can be no need of any artificial food, if, during the first five or six months, the infant is applied to the breast at regular intervals of about three or four hours, by night as well as by day. The appetite of the child can be thus duly understood and satisfied by regularity of attention. 'A

single ounce of milk,' says Dr. Combe, 'well digested, will nourish more than double the quantity when it oppresses the still feeble stomach.'"

We quite agree with Dr. Barker as to the injurious effects upon mother and child of protracted lactation, and also, that gradual weaning, i. e., either allowing the child to suck by day or night only, and then diminishing the number of times it is taken to the mother or nurse, may be accomplished without any great amount of distress. Dr. Barker has given very judicious directions as to the kind of food after weaning, and also the best food if the child be spoon-fed from the beginning.

The quantity given should be judiciously regulated, so as not to oppress the infant, or to call upon nature's remedy, vomiting; and if the child is griped, let the doctor prescribe, but not the nurse. We have strong sympathy with Dr. Barker in his abuse of narcotics, and we have had proof that they are used by nurses to a mischievous extent.

During the second stage of infantile life, a change to something more substantial will be required. Bread and milk is probably the best; and Dr. Barker has furnished us with a variety of other preparations, which are worth extracting:—

"1. *Bouillie* (a French preparation), commonly known in this country as *baked flour* food, may be safely recommended to mothers, as well worthy of a trial. It is made by roasting very gently the best wheat-flour in a slow oven, and afterwards boiling, or rather simmering it for a considerable time, either in water or milk and water, then adding a little sugar. When it is well made, it should be free from knots or lumps, and not too thick.

"2. If the above should not agree with the infant (although it often does, if properly made) the *boiled flour* food may be tried. Take a pound of flour, put it in a cloth, tie it up tightly, then put it in a saucepanful of water, and let it boil four or five hours; then take it out, peel off the outer rind, and the inside will be found quite dry, which grate. A small quantity of this boiled flour should be made into food in the same way as gruel is made, and then slightly sweetened with lump sugar. New milk, provided it agree with the child, may be added to this preparation.

"3. A French spoon-food, called *crême de pain*, may be prepared according to the following simple recipe:—Take a few slices of well-baked bread, and dry them well (but do not burn them) in an oven; then infuse them in water for several hours, and let them simmer for a considerable time, adding now and then a little more water, that the sop may not become too thick. Sweeten it moderately, and add (if you please) a few drops of orange-flower water.

"4. The farinaceous food for infants prepared by Hards of Dartford, Dodson's biscuit powder, or Lemann's preparations, may sometimes be used with advantage.

"5. Bullock's semola is an excellent preparation, of very uniform strength, and has been found by the writer, when properly cooked according to the printed directions accompanying it, to agree remarkably well with the digestive organs of the infant. This preparation is rich in gluten, the pure nutritive or flesh-making principle of wheat. One part is equal in nutritive power to five parts of wheaten flour, and it is as digestible as it is nutritious. The manufacturer's well known chemical attainments have been usefully exercised in the preparation of a really valuable article of diet, both for the infant and for the invalid.

"6. The *rusk food* is very useful in some cases, and may be made with rusks, boiled for an hour with water, which should then be either strained through a sieve, or well beaten up by means of a fork, and slightly sweetened with lump sugar. Great care should be taken to select good rusks, as few articles vary so much in quality.

"7. Another useful food is the top crust of a baker's loaf, boiled for an hour with water, and then moderately sweetened with lump sugar. If at any time the child's bowels should be costive, *raw* may be substituted for *white* sugar, in any of these preparations; and should *moist* sugar not answer the purpose, a small lump of *manna* may be used instead.

"8. *Rice food* may be prepared in the following manner:—Soak some *best* rice in cold water for an hour; strain, and add fresh water to the rice; then let it simmer till it will pulp through a sieve: put the pulp and water into a saucepan with a lump or two of sugar, and again let it simmer for a quarter of an hour. A portion of this may be mixed with new milk, so as to make it of the thickness of cream, and should be given by means of the bottle. If the bowels are much relaxed, the milk may be boiled, but not otherwise.

"9. The following is a good food when an infant's bowels are weak and relaxed:—Into five large spoonfuls of the purest water, rub smooth one dessert-spoonful of fine flour. Set over the fire five spoonfuls of new milk, and put two lumps of sugar into it; the moment it boils, pour it into the flour and water, and stir it over a slow fire twenty minutes."

The chapters on clothing, temperature, air, sleep, bathing and washing, light, exercise, and amusements, nursery and nurse-maids, are very good, and based on common sense. The book is written as much for the public as the profession, nor do we find fault with that, but it renders the chapter on dentition necessarily imperfect. There is one observation which we shall extract for the benefit of our readers, on the subject of lancing the gums:—

"Many have erroneously supposed that lancing the gum should be speedily followed by the appearance of the tooth; and that when this is not the case, the wound in the gum will heal, leaving a scar which will obstruct the growth of the tooth. These errors must be corrected. In the first place, we occasionally scarify the gum when the tooth is seated deeply, for the purpose of relieving tension and irritation, rather than to expedite the protrusion of the tooth. In the second place, it is not true that when the gum heals, after being lanced, the scar will impede the progress of the tooth; for newly cicatrized flesh is easily absorbed. So much relief has been afforded by this simple operation, that we are often called upon to repeat it during the progress of successive teeth. We have insisted on this point simply for the benefit of the young mother, who may entertain groundless fears when we speak of 'using the lancet.' In many cases the operation is quite indispensable; for without it other remedies would be unavailing.

"To describe the mode of lancing the gums may be unnecessary for readers in this country, where medical aid is everywhere near; but for missionaries and other persons similarly situated, it may be useful. When the object is merely to draw blood (so as to afford relief in the first stage of irritation, or before the tooth has advanced near to the surface), the gum may be lanced freely *along the surface, but not deeply.* But when our object is to open the gum and afford passage to the tooth, the incision must be made firmly and freely through the gum, until the lancet is felt to grate upon the tooth. In the case of one of the front teeth, the lancet should be passed down in front and behind the edge of the tooth. For a double tooth two incisions should be made over its surface, crossing each other; the instrument being made to grate upon the tooth in each incision."

The second *brochure*, by Dr. Whitehead, is a Report of the Clinical Hospital at Manchester, established by the late Dr. Scheopf Merei, whose first Report we noticed in a former Number of this Journal. We cannot speak too highly of this Report as a contribution of facts. The chapters treat of the number and quality of the patients, physical development, teething process, process of ossification, growth of head and chest, faculty of walking, signs of good development, vaccination, alimentation in infancy, number of deaths and their causes, remarks on the diseases and deaths, hooping-cough, syphilis, diseases of women.

We shall present an extract to our readers as a specimen of the work, strongly advising them to read the whole for themselves. The power of walking in children is a good test of development at a certain age, and the following are the results of Dr. Whitehead's observations:—

"In 710 children with a *good* development,

At the age of	7	months, began to walk,	1
,,	8	,, ,,	1
,,	$8\frac{1}{2}$	,, ,,	2
,,	9	,, ,,	48
,,	10	,, ,,	77
,,	11	,, ,,	133
,,	12	,, ,,	188
,,	13	,, ,,	75
,,	14	,, ,,	90
,,	15	,, ,,	57
,,	16	,, ,,	21
,,	17	,, ,,	5
,,	18	,, ,,	7
,,	20	,, ,,	5
None later than at the 20th month.			710

"Of 137 children with a *bad* development,

			Began to walk.	Did not walk.
At the age of	9	months,	0	0
,,	10	,,	2	0
,,	11	,,	4	0
,,	12	,,	18	6
,,	13	,,	4	6
,,	14	,,	17	6
,,	15	,,	25	13
,,	16	,,	30	16
,,	17	,,	27	11
Between	18 months and 3 years,		200	61
After the 3rd year,			16	2
Of the last named 16, however, 15 were ricketty.			343	121
			464	

The chapter on hooping-cough is very interesting. Out of 2584 patients, there were 211 cases of pertussis. The number of deaths was 32, one only among the uncomplicated.

In simple cases, or complicated cases restored to health, the remedies were Dover's powder alone, or with camphor, camphor inhalations, emetics, belladonna, and local ointments. By the opium treatment 58 cases were treated, and cured, on the average, in twenty-eight days. By the belladonna treatment, in 67 cases, the average duration was twenty-two days.

An Essay on the Treatment of Cataract. By Mark Stephenson, M. D., Surgeon to the New York Ophthalmic Hospital; Fellow of the New York Academy of Medicine. Philadelphia. 1858. Pamphlet, pp. 26.

It has seldom fallen to our lot to peruse a more miserable attempt at an essay on the treatment of cataract. The whole subject is considered in twenty-six pages of large type. This is the more discreditable to the author, as, from a few faint glimmerings of ophthalmic knowledge that appear throughout the pamphlet, we think he understands the nature and treatment of these affections.

The operations of division, displacement, and extraction, are treated in a most superficial manner: merely a few desultory remarks on each, and a few brief quotations from various authors; for instance, *only the first stage of the operation for extraction* is described. The after-treatment of the operation is equally carelessly written; we are advised to give "diffusible stimuli" in cases where we are in doubt as to the nature of the subsequent inflammation, that is, whether it is of a sthenic or asthenic character. In Ireland we endeavour to make a correct diagnosis in such cases before we chance the treatment of them. Congenital cataract is disposed of in real Yankee style, *five lines and a half* only being devoted to this important part of the subject. We fully agree with Dr. Stephenson in his objections to anæsthetics in cataract operations; except in children, we believe them to be wholly inadmissible. Professor Pancoast's operation of "lateral" displacement is fully described, but, in our opinion, all the objections to the ordinary methods of displacement apply with equal force to this. For the operation of capsular extraction, "Mr. Bowman's blunt-pointed canular scissors" are recommended. Here is a slight mistake,—it is to our countryman, Mr. Wilde, the invention of this instrument should be ascribed, and not to Bowman. The pamphlet is adorned with five hideous-looking lithographs, intended to represent the absorption of a traumatic cataract. Were we to point out all the author's omisions, we should have to write a review three times as long as the Essay itself.

PART III.

MEDICAL MISCELLANY.

Biographical Memoir of the late Thomas Hawkesworth Ledwich, M. R. I. A., Fellow of the Royal College of Surgeons, Ireland; Surgeon to the Meath Hospital and County of Dublin Infirmary; Lecturer on Anatomy and Physiology in the Original School of Medicine, &c.

In this adventurous and speculative age large fortunes are rapidly lost and won. So long as the prosperity of a life may be involved in the events of a day, or the incidents of an hour constitute the climax of a career, success must not unfrequently come with an equivocal recommendation. A daring venture, the failure of which might have entailed ruin—a desperate hazard in which fortune and fame were alike at stake, resulting happily for their projector, seem to lose the character of rashness, and cease to be identified with what, under other circumstances, might be termed dishonesty. Each in the bustle of life contending with his neighbour for the coquetting prize, perceiving he must often boldly woo or hopelessly lose, in sympathy joins with those who achieve success. Society, entering into a compromise with its conscience, forbears to investigate too curiously the means by which the object of a common ambition has been attained, so long as its advantages only are felt. In professional life it is otherwise. Sudden success will ever be an exceptional occurrence, and, when achieved, must come as the simultaneous development of years of previous labour and study, which genius is enabled to apply to passing opportunity.

It may seem strange that the esteem and approval of a profession is not always accompanied *pari passu* by the confidence and support of the public. Yet, when it is remembered that, to secure this latter, the practical adaptation of professional acumen is as essential as its possession, and that these do not by any means stand in necessary relationship, observation at once suggests adequate explanations, why it is that many men of great minds and varied knowledge have in practical life been little known beyond their own immediate circles.

To trace the career of one who, at an early age, attained a high and distinguished position—who, by the intrinsic force of a superior intelligence, exercised material influence on the educational status of his profession—who was called to its councils and placed in its foremost ranks as a universally conceded tribute to his ability and worth—may be merely to recount those means by which many have attained past or present honours; and thus to add additional weight to the comforting assurance that merit eventually brings its reward. Yet, as the circumstances of a time are common to every candidate for distinction, and he who outsteps all competitors must have some superiority over them, natural or acquired, to account for his success, it will not be uninteresting, nor yet without advantage, to inquire the particular means by which, in an individual case, a distinguished claim on posterity has been established.

The reputation of our Irish Medical School has, within the last half century, deservedly risen to the highest position. The character for practical teaching which its hospitals had acquired rendered their wards the resort of pupils from the various Continental and American schools who wished to study disease as it is. Abroad, the Irish student was certain of being received with confidence and respect. Numbers, each year, joined a profession which, either in the public service or through the colonies, pointed to competence if not distinction. The prosperity of the hospital educational system seemed so well founded on the intelligence of those for whose benefit it had been introduced, that little apprehension was felt for its unabated success. To meet the necessity of preliminary education, Medical Schools became established under the special guidance of men possessing the confidence of the profession. These had received recognition by the several licensing bodies as legitimate theatres for instruction. It was found that in many instances, owing to the increase of numbers, the immediate public institutions were inadequate to meet the necessities of all, or to convey to each those exact and particular impressions that constitute available knowledge. Private classes, in which closer communion between pupils and instructor prevailed, were accordingly formed. In these classes oral examination chiefly prevailed. The student, acquiring recitative knowledge of those several matters which came within the range of terminal examinations, found that their aid enabled him, for such purposes, to dispense with or neglect that practical information which hospital attendance with personal manipulation had hitherto been the only means of attaining.

Classes thus threatened to defeat the object to which they were intended to be auxiliary. Though a capability of answering afforded no index of the available practical knowledge so questioned, it was yet possible to pass the several Colleges by means of the information thus acquired. Men were thereby enabled to become practitioners without previous observation, and to enter on important duties while wanting in experience. This misapplication and abuse of a system, admittedly excellent in principle, threatened

seriously to affect the well-deserved practical character of the Irish school. The convenience of private tutelage being established and generally recognised, it became important to divest it of the capability of being perverted. This could only be accomplished by rendering the class-room the reflection of the hospital and anatomical theatres. It was because the subject of our present memoir was pre-eminent in his exertions for this end, and, as we believe, placed on a permanent and acknowleged basis the private educational system, that we consider him to have deserved well of the profession.

Thomas Hawkesworth Ledwich, son of Edward Ledwich, Solicitor, grandson of the Rev. Edward Ledwich, Vicar of Agaboe, in the Queen's County, author of the well-known work on the Antiquities of Ireland, seems from his earliest years to have inherited the ability and industry of his distinguished progenitor.

Born in the year 1823 in the town of Pembroke, South Wales, where his family was then temporarily residing, he received, in the town of Waterford, their usual abode, that preliminary, general, and professional training which pre-eminently fitted him for the position he subsequently attained. Having from infancy manifested a quick intelligence and aptitude for learning, which afforded high promise of future success in whatever career of life he might ultimately select, he received from Dr. Graham the sound and enlarged general education which that gentleman's celebrated academy was known to offer to those placed under his instruction. He was thus qualified either to enter on a University career or the peculiar duties of a special profession. The latter course he preferred. Indentured to Dr. John Mackessy in the same town, whose high professional position had insured him a large general practice, both among the public at large, and the local charitable institutions, he there gained that thorough acquaintance with the rudimentary details of medicine both as a science and an art, which formed a solid basis for the superstructure of future acquirements. This period of probation was passed in extensive study, as well as diligent application to professional details. In 1841 he entered as a pupil in the Peter-street School of Medicine, then possessing a working reputation. In 1844 he was admitted as Licentiate of the Royal College of Surgeons in Ireland. The assiduity and ability he had displayed as a pupil procured him the position of Demonstrator of Practical Anatomy in the Original School, Peter-street, wherein he had been educated.

In the following year, under the provisions of the new charter, in consequence of his competency, he was received into the Fellowship of the College, at an age when many begin first to think of entering on their professional studies. He immediately commenced that course of instruction for which unceasing application to the duties of the School, well-regulated study, close attendance on hospital, and early educational labours, furnished him with ample material. His progress was such that in 1847 he became one of the principals of the School, and at once took his stand among the most able and popular Lecturers on Anatomy, Physiology, and Surgery. During

these years his labours were without intermission. Sedentary habits; continued application to anatomical demonstrations within the School; mornings devoted from an early hour to private instruction, and evenings to further study, induced a condition of the system which eventuated in recurrent attacks of hemoptysis, and so prepared the way for much future suffering. Supported by able colleagues, he now matured his plan for placing on its proper footing private professional tuition. Classes became conjoined with the School. In these, under his guidance, and through his questioning, the student learned to develop his reasoning by the study of principles, and to try his knowledge, as well as refresh his memory, by the discussion of those anatomical or surgical facts which had either formed the morning's observation, or were capable of special elucidation. Hundreds were thus led to weigh their own knowledge, and to be conscious of their own deficiency. Plates, casts, surgical appliances, and other means, renewed the impressions of actual practice, the necessity for which they were not permitted to obviate. Emulation led to progression. A generous rivalry became manifest in other institutions. It was felt that material influences could not avail against this educational progress, which had, amongst the junior members of the profession, awakened the impression that knowledge, to be valuable, should be a reality. Students in large numbers, consequent on the greater demand for surgeons which was induced, were found by his side. Men there became thoroughly initiated in the great principles, the practice of which was their future duty. Crowded lecture-rooms and closely attended hospitals proved the spirit which was abroad. Oral education, or private teaching, had triumphed over those imperfections which might have, nay, had, vitiated its practice.

It is not intended by these observations to detract from the great merit which many teachers had previously attained. Undoubtedly, the honour and conduct of the profession was safe in their hands. Public notoriety had, however, recognised the vicious operations of a good system which thus stood regenerate. Upon the process of this regeneration, and the steps by which the subject of the present observations throughout the last ten years arrived at a high and distinguished position, we now venture to enter.

A public lecturer in a large city ever undertakes a serious responsibility, especially when his subjects are of practical utility, and require not unfrequently the commendation of personal experience. In this capacity Mr. Ledwich was pre-eminently successful. Let us investigate the means by which his success was not only originally acquired, but permanently retained.

Possessing a natural eloquence, springing from its true source—warm feelings, fruitful imagination, and powerful reason, without which eloquence is but the rhetorician's art—he always approached a subject with complete knowledge, and discussed it in pure and nervous diction. Study, which had early ripened his faculties and filled his mind with new, strong, and extensive ideas, had insensibly con-

ferred a systematic style, which placed in natural arrangement the matter of his discourse. Perfect simplicity, united with polish, a lucid arrangement, and unbroken connexion of the several facts to be noticed, with conciseness and point in expression, lent a peculiar force and charm to instruction on abstruse branches of knowledge for whose exposition these qualifications were especially requisite.

When, at the inauguration of the Educational Session, he departed from the stricter precision which abstract subjects demanded, his genius took a loftier range. His addresses were then of an admirable description, copious with argument, abounding with information, full of extemporary bursts of great merit, producing at the time extraordinary impressions. On these occasions he was wont, in a fine statement of enlarged views, and a generous avowal of dignified sentiments, with a manly and somewhat severe contempt for paltry or mean opinions, to impress the youth around him with the deep responsibilities, as well as the high privileges, of the profession on which they were about to enter. Of these inaugural lectures, we regret to learn, but very imperfect copies remain. It was not, however, to such isolated exertions his reputation as a teacher was due, but rather to his continuous efforts throughout the session as Lecturer on Anatomy and Physiology, in which sciences he has left lasting evidence of his proficiency and excellence. The form of his mind was eminently calculated to sustain the position he had specially taken, that of bringing into closer relation theoretical and practical study, and so establishing, on a worthy basis, the system of private professional tuition. To this object his best exertions were given, nor could so great a work have fallen into abler hands.

In an enlarged view of general subjects he stood high; if not above all his contemporaries, at least in their foremost ranks. When discussing any one of the many abstruse matters which entered into the course, his class at once perceived they were in converse with a reasoner and teacher to whom almost every branch of knowledge was familiar. His views ranging over each cognate subject, his reasoning derived from principles applicable to other matters as well as those immediately under consideration, led, on the one hand, to philosophic generalization, and, on the other, to particular inference. The unlimited abundance of his stores made him not only free, but profuse in their expenditure. When investigating points of great nicety, the discrimination with which he treated each was such as seemed to remove all difficulties, and to dispel whatever obscurity clouded the subject.

Possessing the rare faculty of combining general views with details of fact, and thus at once availing himself of all that theory or speculation presented for a guide, with that which practical experience afforded to correct the results of natural reasoning, he led the student mind to the *practical* as the test of *speculative* questions, impressing the value of actual or ascertainable truth, rather than the impossible attainment of theoretical perfection. Regarding with utter scorn the affected wisdom of some few, who think they prove

themselves sound practical men, by holding cheap every proposal with which their own experience may be at variance, or who reject theories merely because they are new,—he entered on each investigation with a calm and dispassionate desire for truth, bringing to bear on its scrutiny extraordinary reach of thought, great power of attention, and close reasoning, a thorough familiarity with the best writers, guided by a well-cultivated and disciplined mind, without any of that squeamishness so fatal to vigour, or that ductility which renders many the dupes of their own or others' ingenuity.

He possessed to a large extent that which is the peculiar faculty of well-disciplined and firm minds—the power of imparting his own spirit to his audience. He wished them to acquire cautious and calculating habits of thought, not easily led away by a fair outside, nor apt to be drawn into extremes by specious arguments. Without expecting perfection in human knowledge, he led the minds of his hearers, by sober reflection and practical views, by actual observation and legitimate inference, to, at least, severely test the plausible suggestions of theory. Though his singular power of analysis served to show at once where the essence of an inquiry lay, yet, in aid of his search for truth, he brought a patient industry which no labour could weary, a desire for its investigation which no harshness in the most uninteresting subject could abate. Few difficulties could, therefore, offer any serious impediments to such a labourer. Regarding sound physiological views as an essential basis for either surgical or medical practice, he lost no possible opportunity of enabling the student to witness those results which the operation of the living machinery under various circumstances afforded. For this purpose experiments were carefully instituted, by which nature was placed in circumstances that might extort her secrets. Similar illustrations, he contended, were ever present in hospitals, wherein alone they could be properly studied. Thus approaching the investigation of vital phenomena with a singularly unbiassed judgment, he manifested himself and inculcated on others that practical eclecticism which had already rendered the Dublin School the bright centre of Medical Science.

Morbid anatomy, as might be expected, received in his hands additional interest. A select and valuable museum, collected from various sources, the greater number of which specimens he himself prepared, testifies to his labour and zeal. Impressed with the importance of pathology as expounding health and disease in their varied relations and mutual reactions, he therein saw the declared result of contending agencies—the exposition of health and disease in their mutual reactions. Looking to life as the element for repair, and seeing in matter material for decay, he avoided the dogmas of contending schools. With him the microscope was but a means for more closely investigating changes resulting from influences beyond the reach of the knife, as the test-tube disclosed the perfection of operations already completed within the vital alembic. Giving to matter its significance, while reserving for life its attributes, he

ever eloquently inveighed against that worse than medical fatalism, which would stereotype in fixed forms vital phenomena, or limit by special rule organic change. A confidence in the powers of life constituted the essence of his professional teaching. Medical scepticism he justly regarded as the precursor of practical infidelity—the development of both being the infallible result of ignorance of the physiological laws, associations, and sympathies which regulate and are manifested in health. Without an intimacy with these, he was wont to contend that practice must degenerate into empiricism or routine. This conviction, while satisfying him of the importance of his favourite studies, further impressed him with the value of attendance on the wards of an hospital, the beds of which he led his class to regard as pages from the book of nature, whereon were written, in living letters, principles which elsewhere could be but indirectly demonstrated. Though beneath his forceps the subject became, as it were, vitalized, as with peculiar perspicuity he pointed out particular conditions, while introducing suggestions, and offering reflections of scarcely less value than the knowledge of the matter in point, the tenor and ultimate object of his observations were, that in comprehensive and philosophic views of life lay the mainspring of future usefulness.

Such being the principle by which his teaching was guided, it is not to be wondered at, that numbers proved anxious for his tutelage. His classes became the largest in the city. This fact received special notice in the Report of Mr. South, one of the Commissioners appointed by the Government to investigate the condition of Dublin Hospitals, and Schools, and was by him justly attributed to its true cause—the efficient manner in which anatomy, as a science, was taught within the walls of the School now bearing his name, as well as to the zeal and untiring labour of himself and of his brother. His merits as a lecturer, and teacher, having thus been publicly recognised, we are induced to turn for a moment to a scrutiny of the individual, in his closer relation to the separate members of his class. We thus obtain a nearer view of that character which enabled him to accomplish success, and command respect.

Mild and gentle in his temper, of an engaging demeanour, marked by firmness and decision, of unsullied rectitude of disposition, that seemed regulated by a rigorous standard of ancient ethics, which gave, to a certain degree, a stoical colouring to his feelings; of habits completely dignified and pure, rationally pious, and blamelessly moral,—his feelings, with casual observers, passed for being less strong and lively than they really were, partly because he had an insuperable objection to extremes in all things, and partly from fear of any semblance to pretension, to which he was ever averse. It was only when wrong was attempted or accomplished, he was quick, if not impulsive, in its denunciation. Redress or contrition secured conciliation, with a generous oblivion of injury. Principle, not passion, was his guide. Gifted with extraordinary prudence, he displayed, from his earliest years, a rare discretion in all parts of his conduct.

That strength of understanding which had worked rather than forced its way through opposition, that steadiness of mind which never suffered any passion or feeling to divert it from the right course, afforded a bright example to the young men around him. The entire subjugation of all passions which carry havoc through ordinary minds, and often lay waste the fairest prospects of greatness, with the discipline of those feelings which are wont to lull or to seduce genius, or to mar or cloud over the aspect of virtue herself, preserved to him an equanimity of mind ever available for calm deliberation.

His pupils learned to regard him as a cautious and safe counsellor in all difficulties. Impressed with the deep sense of responsibility which devolved on one having daily and close intercourse with numbers, who, without experience, were subjected to the temptations of a large city, he became schooled in the stern exercise of gentle virtues. Despising the weakness which eventuated in excess, when opportunity offered, he preferred to admonish, rather than condemn. With caustic satire he thoroughly probed without lacerating the moral wound, and sought, in dealing with those whom higher feelings were inadequate to influence, to make virtue desirable by proving vice to be contemptible. Example was not wanting to precept. Experience of youth gave him confidence in the regenerating influence of knowledge. He sought to awaken amongst them an emulative spirit. Pride in the consciousness of a self-acquired and hardly won position rendered him confident in the belief that genius, however great, required study for its nurture and unceasing energy for its development. Idleness, therefore, he regarded not only as a folly, but a crime; the spendthrift of time as worse than the prodigal of fortune. Endowed with the greatest faculties of the understanding, his pupils saw him cultivate them with an assiduity which he felt should not be omitted, if deeds worthy of recollection were to be accomplished. They were thus satisfied that for ordinary capacities, application was an absolute necessity. Industry in pursuit of knowledge became characteristic of his School, and formed the best check on many, who, creatures of impulse, are not unfrequently led into dissipation through the exuberance of feelings in their nature kind and good. Having created the desire, he amply provided gratification. A diligent man of business, punctual in his appointments, regular in the distribution of his time, those who were anxious for information and progress reckoned with certainty on the presence of one who manifested resolute determination in the pursuit of his object.

He never undertook that which he felt he was, or might be, unable to perform. His attendance on his pupils was, therefore, unfailingly regular. This, to the end, was a part of the natural honesty of his character, which success could not vitiate, and which he would never permit other engagements to interrupt. It was often a lesson and a study, as well as a marvel, to witness the zeal with which, after a sleepless night of suffering, he entered on the duties of the day. His scrupulous integrity in this respect secured to him not only the sympathy, but the esteem, of all who observed the triumph of

purpose over physical debility. As professional demands on his time increased, he felt the necessity of limiting his tutorial labours to those more advanced, or immediately entering on practice. The unprecedented success which attended his exertions is the best testimony to their efficiency. In saying that to his labour is chiefly due the practical character which private medical education has of late years assumed, as well as the universal admission of its great importance, we render the best tribute to one who for some years was its acknowledged chief.

As might have been expected from such an order of mind, the desire to record original observations succeeded to the enunciation of ascertained knowledge. His contributions to medical literature are eminently practical, manifesting observation at once close and cautious. Their principles have not only been adopted by the profession here, but French periodicals, also recognising their great merit, have conferred on many of them the rare distinction of translation to their pages. Those papers to which we would especially refer attention we have enumerated below[a]. Completely free from that didactic style which argues absolutism in foregone conclusions, the inferences sought to be established develop themselves from observations insensibly leading the reader to the bed-side with their author. This, we are proud to feel, is the rare merit of Irish medical literature. These contributions are sufficient to show what might have been anticipated, when opportunity afforded a wider range.

As a Reviewer and critical Essayist, few, at so early an age, have manifested greater ability. For these branches of authorship the nature of his previous studies particularly qualified him; and here, in a pre-eminent degree, is displayed that great excellence which characterized everything to which he directed his mind. It is at all times a thankless and obnoxious office to detect brilliant fallacies, or to unveil specious errors, more especially when the safety of science renders it requisite to be severe, in order to be just. For such duties he was eminently suited. Bringing to his aid that happy union of strong but disciplined imagination, with powers of close, undivided attention, and ample resources of reasoning, which forms original genius in scientific pursuits, he was at the same time completely influenced by a genuine devotion to the investigation of truth for its own sake. This devotion is remarkably shown in the judgment with which he weighed conflicting authorities, and the freedom with which he rejected improbable relations.

[a] "On Adult Patency of the Foramen Ovale," Dublin Quarterly Journal of Medical Science, and Bulletin Thérapeutique de Paris; "On the Pathology and Treatment of Anthrax and its Modifications," Dublin Quarterly Journal of Medical Science, and Bulletin Thérapeutique de Paris; "On Subacute Inflammation of the Prostate Gland," Dublin Quarterly Journal of Medical Science; "On the Pathology and Treatment of Acute and Chronic Abscess by Drainage Tubes (Chassaignac), with the Rationale of their Action," Dublin Quarterly Journal of Medical Science, and British Medical Journal; "On the Pathology and Connexion subsisting between Gout and Gangrene," Dublin Quarterly Journal of Medical Science.

Evincing a clearness of understanding, against which sophistry set itself up in vain, the difficulties of the most complicated subject disappeared before his uniform industry, while the general fidelity of his statements, where he differed with opinions advanced, are, wherever circumstances permitted, verified by constant reference to numerous and varied authorities.

In matters of difficulty or doubt, never was a fairer or calmer tone evidenced than that which his writings testify. Above paltry or narrow views, he wished well to each fellow-labourer. It was only when he felt science was in danger that he became severe; then it was at once evident he wielded a master pen. With respect to his literary style, though no one could question its great merit, his earlier writings, as well as some of his published "Introductory Addresses," might be regarded as less idiomatic or more laboured than is consistent with perfection of composition. This was partly due to his extreme anxiety to do the fullest justice to the work under review, and partly to the fact that the mechanical transcription seldom underwent his critical supervision. His latter contributions allow of no such objections. The pure and vigorous language in which they are expressed, the easy and natural order in which the topics which enter into consideration follow one another, bear evidence that they result from a careful reflection on the whole subject; that the matters are not taken upon a plan, but each, as it were, springs out of its immediate predecessor to find an utterance which cannot be misunderstood. His medical reviews may be fairly pronounced as amongst the best extant. They constitute complete essays on the subjects which they are intended to analyze. This will be sufficiently evident by reference to our pages in which they have appeared[a].

The unexampled success with which his efforts were crowned induced him, in combination with his brother Edward, to bring out an original work on Human Anatomy, the intrinsic merit of which has been fully recognised by every student in the profession, and which it is unnecessary to do more than refer to.

As we have been thus led to introduce the name of him who, though not alone in sorrow, chiefly mourns his loss, we may be permitted to pay a passing tribute to fraternal affection without a parallel,—to self-denying and chivalrous devotion, which, in constant ministry, sustained and gave confidence to the worthy object of so great care. The living grieves for the dead! when the merits of the one are discussed, the excellence of the other should not be forgotten, since it is such unselfish and generous spirits as his, which bridge the way to immortality.

It is not to be supposed that one so energetic and successful could

[a] The following are some among the critiques from his pen which appeared from time to time in our Journal:—Adams' work on Rheumatic Arthritis; Gray on the Spleen; Curling on the Testis; Reynolds on the Nervous System; Fell on Cancer; Nélaton's Surgery; Hilton's Pathology, &c., &c.

pass through life without awakening some antagonism. Respectable mediocrity offends no one. Prosperity is unsavoury to those who disregard firmness of purpose not to be weakened by delay—steady perseverance not to be relaxed by difficulties, without which success is to genius accidental, to ordinary capacities impossible. Narrow minds of little men cannot expand even to the full apprehension of that excellence, with which superior natures are gifted, or which they have by culture attained. There have not been wanting men of little depth, and no genius to question the opinions we here advance. We point to the result. There we witness a rare instance of purely intellectual excellence, without one single adventitious aid, whether from family influence, or other causes which may be esteemed accidents of fortune, accomplishing that which is considered the ultimatum of professional ambition. Thus tracing at every step sterling worth, we see conflict with difficulties of every sort and magnitude, almost, we might add, with nature herself. He who so triumphed over each might well feel proud of a position to which he had fairly climbed, and never crawled.

The Meath Hospital and County of Dublin Infirmary has long, and deservedly, possessed the highest reputation as an educational school. This nursery of clinical instruction, wherein was founded that system for which Dublin has since become so famous, presented a vacancy in the ranks of its surgical staff. A GREAT MAN WAS DEAD. Sir Philip Crampton had more than half a century previously developed and successfully carried out the system of extra collegiate education. This, in fact, was the initiation of his world-wide renown. Having exhausted science, and written his epitaph in the hearts of all, he at length rested from his labours. Those colleagues, on whom this great light in its full refulgence had shone, were called on to honour his memory, by electing to their body one whom they hoped might follow in his steps. Their choice thus fell where they believed it could be best bestowed. He whose course we have traced thus far, was called to that high and deeply responsible position. Merit had triumphed over every other consideration. The great prize was won.

Here, where competition for distinction on a wide and ample field with generous rivals commenced, we may add, it was also brought to a close. Within a few short months another vacancy had occurred. He who founded, and he who perfected an educational system, were called to give account of their stewardship. The one, advanced in years, matured in wisdom, laden with honours, possessing a world-wide reputation, and leaving an undying fame. The other, scarce passed the threshold of youth, buoyant with hope, equipped in industry, prepared to battle with giant difficulties through the confident inspiration of a noble science. In the eulogy paid to the aged, the younger was not omitted. A great and generous mind gave suitable expression to the estimate of the profession. The Address of Dr. William Stokes, who, of living Irish medical men, is, perhaps, the most competent to speak with authority in reference to merit,

afforded to the listening and sorrowing students but additional assurance that their affectionate respect had not been unworthily bestowed.

We have limited our observations to that which might fairly be considered as a public career. If for a moment we be permitted to draw aside the curtain which veiled his domestic circle, we there find that, though his ability was exalted, it was surpassed by his virtue. Few persons had ever reached a higher place in the esteem of their contemporaries, or better deserved the position they had gained in professional reputation,—yet how infinitely short did it seem to that which he held in the affections of his family and friends. There he was thoroughly known and understood. Amiable, simple, natural and cheerful, of scrupulous integrity and of unsullied honour, free from irregularities which too often are incident to the greatest genius, his leisure was passed in studies alike calculated to exalt, and further refine an already abundantly stored intelligence. He did not believe that the truths of philosophy were those which alone were important to be studied. Greater learning occupied his thoughts. Religion, as an active principle, rather than an ostensible profession, directed the conduct of a blameless life. Married to one in every way worthy of the most exalted affection of such a heart as his, rich in friendship, and surrounded by blessings, a long career of happiness seemed in store for him. There was, but not here. In the spring-time of life, at the age of 35, he was called home.

The immediate circumstances of his death were such as, to a mind that "walked steadfastly in the right path," had no terrors. Anxious for the progress of surgical science, he had visited Paris to observe any of those new improvements in art in which that school is so prolific. It is presumed the great heat induced an attack of hæmoptysis to which he had been subject. A sudden hemorrhage came on without a moment's warning. By his side were immediately present those he most cherished on earth, a young and loving wife, a dearly devoted brother. They caught his parting breath as life closed without a struggle. At midnight the fatal summons came. The morning sun shed cheering light around; the busy world resumed its daily toil; darkness and desolation were in that chamber still.

One who profited by his labours and was encouraged by his example—who honoured his genius and appreciated his worth—who cherishes his memory, while mourning his loss—offers this tribute to the friendship of many years—believing that in no way could he more truly advance the honour, or uphold the dignity of the Irish medical profession, than in affording to those who are about to become its members the example of Thomas Hawkesworth Ledwich.

Letters addressed by Edward Jenner, M. D., to the late Samuel Bell Labatt, M.D., of Dublin, on the Subject of Vaccination. Edited by Hamilton Labatt, A. B., F. R. C. S. I.

During a period of some years several letters passed between Dr. Jenner and my father on the important subject of vaccination; unfortunately, the correspondence was not preserved; but, feeling that, at the present period, when the prevention of variola is occupying so much of public attention, any communication from the illustrious discoverer of vaccination would be interesting, not only to the profession, but to the community at large, it has occurred to me to give publicity to such of Dr. Jenner's letters as have as yet appeared amongst my father's papers. In these few letters we shall find, as Dr. Baron has well observed of the numerous communications from the same source published by him, not only "a naturalness and simplicity of style," but also "an exquisite perception of propriety in the manner of expression, and an ease and freedom in the choice of words, which has seldom been exceeded."

Besides the letters from Dr. Jenner, there is one from his daughter, Miss Catherine Jenner, in which there is a touching allusion to a sad domestic bereavement in the loss of a favourite son. The impression which this melancholy event made on the afflicted parent is described in the following passage taken from a letter addressed by him some time afterwards to his friend Sir Thomas Bernard:—"Your letters," he writes, "are always pleasant to me; I was in your debt when you were good enough to send the last, and should have answered it long ago but for a most afflictive event which has happened in my family,—the death of my eldest son, an amiable youth who had just reached his twenty-first year. This melancholy occurrence threw me into that state of dejection which renders me unfit to perform my ordinary duties, and I still feel enveloped, as it were, in clouds, so that all objects wear a new and gloomy aspect"[a].

The fourth of the subjoined letters is of peculiar interest: it refers to the remarkable case of the Hon. Robert Grosvenor, who was vaccinated by Jenner himself in 1801, and contracted small-pox in 1811. The excitement produced in London by this failure of vaccination was, at the time, very great. It is thus alluded to by Jenner in a letter addressed to his friend Dr. Baron, dated June 11, 1811:—"The noise and confusion this case has created is not to be described; the vaccine lancet is sheathed, and the long-concealed variolous blade ordered to come forth. Charming! This will soon cure the mania. The town is a fool—an idiot; and will continue in this red-hot, hissing-hot state about this affair until something else starts up to draw aside its attention. I am determined to lock up my brains, and think no more *pro bono publico*, and I advise you to do the same, for we are sure to get nothing but abuse for it." The change which calm reflection and reasoning brought about in the feelings of this great man is strikingly set forth in the letter he addressed to my father on the same case, less than a month afterwards.

[a] Baron's Life of Jenner.

Although the commencing paragraph of the last letter to my father would lead one to imagine that an interruption of some length had occurred in the correspondence, I have reason for supposing that its duration was not so long as the interval between February, 1814, and January, 1821, and, therefore, I am in hopes of discovering other letters that may prove interesting. Of the short series I have been able to produce, the last is of the utmost practical value, containing sound rules for our guidance, which the vaccinator ought never lose sight of; and when we recollect that this letter was written some years after that sad event[a], which Dr. Baron informs us was "the signal for his final removal from public life," and scarcely two years before his death[b], which had been preceded by repeated illnesses of a serious tendency, we can in some degree estimate the untiring energy and zeal which, notwithstanding sickness and domestic affliction, Jenner evinced in the promotion and diffusion of that great discovery which he had proclaimed to us.

I.

BERKELEY, GLOUCESTERSHIRE,
February 11, 1807.

DEAR SIR,—I have this evening been favoured with your obliging letter, enclosing the Report of the progress of the Cow-Pock Institution, Dublin.

Be assured it is a gratification of the highest kind to hear that the practice goes on so successfully. I must request you to present my respectful compliments to the gentlemen of the Institution, and to accept the best wishes of,

Dear Sir, your obliged and
Very faithful, humble Servant,
E. JENNER.

S. B. Labatt, M. D., Dublin.

II.

BERKELEY, *Februry* 8, 1810.

SIR,—My poor father has been for some time so much depressed on account of an afflicting domestic occurrence, that he hopes you will excuse my writing in his stead, to thank you for your kindness in sending the Report of the Dublin Vaccine Institution, with which he is much gratified. The same circumstance which prevents his writing now was the cause of his not answering your former letter. He bids me tell you he is perfectly pleased with the insertion of his letter respecting the unjust report of Lady C.

I remain, Sir,
Your very obedient, humble Servant,
CATHERINE JENNER.

To Dr. Labatt, Vaccine Institution, Dublin.

[a] The death of Mrs. Jenner, which occurred in September, 1815.
[b] Jenner died on the 26th of January, 1823.

III.

CHELTENHAM, *January* 20, 1811.

SIR,—I have had the honour of receiving your obliging letter, with two copies of the Report of the Vaccine Pock Institution, and beg you to present my grateful acknowledgments to the Governors for their obliging attention. The pleasure I feel in observing the rapid progress of vaccination in Ireland, and the success which attends it, is greater than I can express. From every part of the Continent of Europe and America I continue to receive reports of the same gratifying nature, and from the British settlements in Asia.

I have the honour to be, Sir,

Your obliged and obedient, humble Servant,

EDWARD JENNER.

Samuel B. Labatt, Esq., M. D., &c. &c.,
62, *Sackville-street.*

P. S.—Some months since I did myself the pleasure of sending you my last pamphlet on the vaccine subject, by the surgeon of the 7th Dragoons, who called upon me in his route to Dublin. Reports like that you have transmitted do an immensity of good among the community when made public; and, next to newspapers, there are no means so likely to make them so as magazines. Two of the most popular in this country are the Gentleman's and the Monthly. If a copy were sent to each of the Editors, they would, doubtless, be happy to insert them.

IV.

LONDON, *July* 8, 1811.

DEAR SIR,—I should long since have replied to your obliging letter had I not waited for a Report which is preparing by the Board of the National Vaccine Establishment. As this is not yet printed, I will keep you no longer in suspense. The Hon. R. Grosvenor, son of Lord Grosvenor, was vaccinated by me in the year 1801. He has lately, according to my judgment, though it has been doubted by some, gone through the small-pox. On the face and limbs it was nearly confluent. The body had scarcely a spot upon it. The pustules did not go through their course in the usual way, but desiccated more quickly; no impression is left upon the countenance, but it is just as smooth as it was before the small-pox appeared; so that although the disease threatened destruction, yet it was deprived of its mortal sting by the previous vaccination. This is the first case of failure I have met with in my own practice, which, when I consider the vast numbers into whose arms I have inserted the vaccine lymph, I cannot but consider as almost miraculous, for why should we consider the cow-pox as a more certain means of security than the small-pox? and it need not be told to you what a great number of cases are upon record of small-pox after supposed security from the disease, either from inoculation or casual infection.

Very fortunately, no less than four have started up all at once, one of them in a family of distinction, and this coincidence has silenced the clamour which most absurdly was raised up on account of Lord Grosvenor's son. This case will finally be productive of much advantage. It will set the people thinking, and this employment will convince them of what I hitherto in vain have been attempting to make them comprehend,—that the cow-pox, like the small-pox, *may be* fallible. You must remember what I have said in the little pamphlet I sent you by the dragoon surgeon on this subject.

I am obliged to you for attending to my hint respecting the excellent Report of your Institution. On my arrival in town I found it came too late to be annexed to that of the N. V. Establishment. Chagrined at the idea that so good a thing should be lost to the public, I applied to one of the members of the Privy Council, when a motion was made in Parliament, and 5000 copies were ordered to be printed. I heartily agree with you in wishing to see some measure adopted by the Legislature for rendering vaccination more general. I think it suffers more from the apathy of the people than any other cause. I will give you an example. In the city of Chichester the small-pox, through the activity of the medical men there, had been banished for many years. The populace grew heedless, and for a great length of time neglected to secure their children. While things were in this state, some kind-hearted old woman, for a small gratuity, was good enough to set about inoculation, and a most destructive epidemic followed. However, it was productive of some good among the general evil, for it exhibited this remarkable fact, many persons who at different periods had gone through the small-pox had the disease again, but not one of those who have been vaccinated[a].

As soon as the next Report is published, I will take care that one shall be sent, and remain,

Dear Sir, most truly yours,

Edward Jenner.

P. S.—I shall return to Cheltenham in about a week.

V.

Cheltenham, *February* 19, 1814.

Dear Sir,—I must request you to present my best thanks to the Governors of the Cow-Pock Institution for their attention in sending me the Annual Report. How gratifying its perusal has been to me, you need not be told; yet how astonishing it is that the Legislature should be so torpid as to suffer our population to be absolutely murdered by such miscreants as you describe. It is not only on your side of the water that such practices are tolerated, but on this also; and I am fully persuaded that the British realms might,

[a] The greater portion of this letter appears in the second edition of my father's work on Vaccination.

long before this time, have been freed from that destructive pestilence, the small-pox, had vaccination been pushed vigorously, and inoculation prohibited. The world exhibits abundant proofs of this where the population indeed far exceeds our own: for example, South America, and in many districts in the East.

I send this by a most respectable family, the Hodgkinsons, who are returning to Dublin after a doleful visit to this place,—their attention to a sick parent labouring under the most dreadful of human maladies, I never saw excelled, and scarcely equalled. I understand you are well acquainted with them, and they often spoke of you with respect.

Believe me, my dear Sir, with great esteem,
Your obliged and faithful Servant,
EDWARD JENNER.

S. B. Labatt, M. D., Dublin.

VI.

BERKELEY, *January* 6, 1821.

MY DEAR SIR,—Having accidentally seen the captain of a little trading vessel who is going to Dublin, I avail myself of the opportunity of writing, and expressing my regret that I have heard so little of you lately.

You, probably, have seen the celebrated work of Mr. Cross, and that of Sir Gilbert Blane, both of which have made considerable impression on this side of the water; having duplicates of the latter, I have sent you a copy.

I am about shortly to publish a circular, and I shall send you one as soon as I can get it printed. The absolute necessity of destroying every vestige of herpes, whatever character it may assume, is so fully confirmed by extensive observation as to be indispensable; but I am now telling you what I perceive by annual reports you seem to be acquainted with. I cannot but lament, as I publicly announced this doctrine so long since as 1804, that it should have been so little attended to. Had it been otherwise, vaccination would have gone on without impediment; we should have heard nothing of varioloid or vaccine disasters of any sort or kind. If we see the vaccine pustule straying a few days after the insertion of the vaccine fluid, we must not be content with a superficial examination of the skin of our patient, but we shall find it necessary to make a more minute inquiry. For, after a general examination, without detecting conspicuous herpetic blotches, we shall find, perhaps, that the child has an herpetic eyelid, a speck behind the ear, or an excoriation in other parts oozes out this fluid, which produces impediment. I find that in many instances an abraded cuticle, no larger than the surface of a split pea, is as capable as a blotch of fifty times the extent of producing this effect. On this subject I need not go further with you than repeat what I have said, viz., let proper applications be made before or during the vaccine process, as

the preparations of zinc, or the ung. hyd. nitrat. lowered, and the vaccine vesicle will assume the legitimate character. When I say during the vaccine process, I mean during the early period, the first four or five days.

Believe me, my dear Sir,
With much respect, yours very truly,
Edward Jenner.

Dr. Labatt, Dublin.

P. S.—Could you send me a copy or two of that Report in which you refer to herpes as creating an irregularity of the vaccine vesicle?

Cases read before the Association of the King and Queen's College of Physicians. By Fleetwood Churchill, M. D., Professor of Midwifery to the College.

Case I.—*Scarlatina.* December 14, 1858, sent for to Mrs. S., and received the following history:—A delicate lady, suffering a good deal during pregnancy, taken in labour of her fifth child December 13, and was delivered early in the morning, after an easy labour of a few hours, Placenta came away naturally; no hemorrhage; pulse quiet and good.

During the day she went on quite well; lochia natural.

In the evening Dr. Smith found the pulse alarmingly quick and very, very weak, without anything to account for it. No pain; no local distress; no excessive discharge.

Dr. Jacob, of Maryborough, was sent for, but nothing local or general could be ascertained with any certainty to account for it, unless it might be the commencement of a latent form of uterine phlebitis. Some calomel had been given on this supposition, but was suspended on account of diarrhœa. Nourishment and wine were liberally given, with benefit to the pulse and strength. The next day, December 14, I was sent for, and arrived at 10 p. m., the report at that time being that the patient was rather better. I found that there had been no rigor; there was neither enlargement of the uterus nor tenderness of it, or any part of abdomen; no swelling; no tympanitis; lochia plentiful, but rather pale, and not offensive; urine copious, and passed naturally; pulse 140, very weak and wavy. Upon minute questioning, she told me that she had neither pain nor distress of any kind. Countenance pale, but calm and easy; neither hurry nor distress in breathing, alæ nasi quiet; no headach. I examined the chest very carefully; on percussion it was resonant everywhere; respiratory murmur full and equable; not an abnormal sound throughout. Upon examining the heart, there was no enlargement, but the rhythm of the sounds was destroyed by the disappearance of the first sound; there was no impulse, but the second sound was natural.

This, then, was the only deviation from the healthy condition

that I could detect, after a most careful examination of every organ of the body. And what explanation did it afford of the perilous condition of the patient? I confessed that explanation I had none to give; all I ventured to say was, that the uterine system was not in fault, but that the disease was in the heart or circulating fluid.

I lay down about 2 o'clock, and at 5 A.M. the Doctor came to me to say that the pulse had begun to sink again. I found her in precisely the same condition as before, with that exception. The pulse was 150 or 160; the respiration rapid, but not difficult; and, in spite of strong stimulants, her state went from bad to worse, until she lost the power of swallowing, became insensible, and finally died about 11 A.M., without pain, struggle, or convulsion.

I returned to town, I may frankly confess, very much puzzled, and by no means comfortable; but the mystery was cleared up when I heard, two or three days afterwards, that the nurse and the lady's husband were laid up with a very severe form of scarlatina. I have no doubt that the scarlatina poison, acting on a system weakened and rendered unusually susceptible by delivery, had caused death before the ordinary symptoms of that disease had time to develop themselves.

Let us now pass on to—

Case II.—On February 23rd Surgeon Morgan asked me to visit Mrs. B. with him. She had been confined, February 21, of her thirteenth child, after a natural labour, and was doing well until the morning of the 23rd, when she awoke with palpitation and a weak pulse of 140, but without pain.

I found the pulse 130, and very weak. There was a nervous tremulousness about her, and a frightened look. She complained of nothing but excessive weakness; no pain, no distress. The uterus felt rather larger than usual, but not tender; lochia quite natural, and without odour. Some milk in the breasts. On examination the lungs appeared perfectly healthy, and there was no abnormal sound in the heart, but the first sound was weaker or less loud than the second.

In short, we could find no satisfactory local cause for the patient's condition, and, in fact, no deviation from organic health, except in the rhythm of the heart. Remembering the former case, I asked if any of the family had recently had scarlatina or measles, but was told that they had not. Under such absence of grounds for correct diagnosis, it was clear that our duty was to treat the prominent symptom (exhaustion) actively, whilst we took some precautions as to certain possibilities.

This we did by the exhibition of stimulants and nutriment, and by poultices to the abdomen. Without troubling the Society with the daily report, I may briefly state that the patient became weaker on the 24th and 25th; at noon of which day Dr. Morgan thought she was dying. No local derangement could be detected at any time, and she took freely, and retained, both food, spirits, and medicine.

Her nights were rather restless, and her sleep not refreshing. On the evening of the 25th we determined to try the full exhibition of quina, and accordingly gave her six grains at bed-time, and three grains every three hours when awake.

The next day there was a perceptible improvement; she had slept better, and felt more comfortable. The pulse was only 120, though weak. The quina, claret, and Hoffman's liquor were continued.

February 27. A more decided improvement. Pulse 116, fuller and firmer; feels stronger, and had no weakness at noon, as previously. As she complained of headach and singing in the ears, the quina was omitted, but food and wine continued.

On the 28th I found her so much better that I ceased my attendance. She had slept very well; pulse 104, and fuller; no local distress; no feeling of excessive weakness. From this time Dr. Morgan informs me that convalescence progressed favourably.

Up to this point we were at sea as to the nature of the attack, although we had the benefit of Dr. Corrigan's assistance; but on the evening of the 28th I think the solution of the problem was afforded by the fact of one of the servants showing unmistakeable evidence of scarlatina.

Case III.—The last case I shall bring before the Society is one of quite a different kind. It is an example of a somewhat rare accident, a vesico-uterine fistula. Mixed cases, in which the lesion involves vagina, uterus, and bladder, are more common, and have been recorded by Jobert, Simpson, and others; but those in which the vaginal canal is entirely uninjured are rare; indeed, Dr. Bozeman, the most recent, and one of the highest authorities on these lesions, has avowed his disbelief in their existence.

The case was that of a lady, aged 30, who had been confined in India of her second child, in June, 1858, after a very tedious labour, terminated by craniotomy. She recovered pretty well, but about the tenth day remarked that the urine escaped involuntarily, and that she could pass none in the natural way.

She came to consult me as to what was best to be done, in September, 1858, bringing a note from a medical man in Wales, mentioning that the opening from the bladder was into the uterus, and not into the vagina.

On examination, in which I was assisted by Dr. Collis, I found the entire vagina uninjured, and by the speculum we could see the urine welling up through the os uteri. I then introduced a catheter into the bladder, and readily passed it through the fistula into the cervix uteri, where we could touch it with another through the os uteri. So far as we could ascertain, the fistula was in form of a vertical slit in the cervix, and was of considerable size, probably extending to the body. Her health was very good, and, what was a great advantage, the parts had not been excoriated by the urine.

It was very obvious that the choice lay between two operations, either I might slit up the cervix, expose the vesical opening, and

close it by ligature, or I might pare the edges of the os uteri, and passing ligatures through it, attempt to produce adhesion of the opposite sides, and so close the fistula.

The objections to the former operation were, that it involved more danger from the close neighbourhood of the peritoneum, and that if, escaping this, the ligatures failed, we should leave the patient worse than we found her. The latter operation had the advantage of incurring no danger, of leaving the patient "in statu quo ante" if it failed, and of affording effectual relief if it succeeded. It is true it involved, of necessity, sterility; but hardly more certainly, I think, than the perpetual current of urine through the cervix, and, as it offered a chance of relief from a disgusting infirmity, sterility appeared to me and to the patient the lesser evil of the two. As regards menstruation, with so free a communication, it was clear that the fluid would pass into the bladder and be discharged per urethram. I, therefore, gave my advice for the latter operation, but as it was novel and of such gravity, the lady and her friends very naturally wished to have the advice of some London authority. They accordingly went to London, and consulted Mr. Cæsar Hawkins and Dr. R. Lee, who, after very careful consideration, concurred in the advice I had given, and sent her back to me.

On November 25, 1858, assisted by Drs. Beatty, Sawyer, and Collis, I proceeded to perform the operation, placing the patient in the position for lithotomy, and giving chloroform. Then, separating the vaginal parietes by dilators, I pared a strip off all round the inner edge of the os uteri, and inserted four silver-wire ligatures, which were maintained in situ by Bozeman's button. The operation occupied an hour, but its conclusion was so far satisfactory that not a drop of urine escaped into the vagina. Opium was given to constipate the bowels; a catheter was introduced and left, and the patient placed in bed. The catheter was changed every day, and the vagina syringed with cold water. Up to the time we removed the button shield, on the eighth day, not a drop of urine had escaped. On the thirteenth day I withdrew the ligatures, and examined with the speculum, and found, to my disappointment, that although not a third of its former size, there was a portion of the os uteri not closed, through which I saw urine escaping.

I still kept the patient in bed a day or two, and an attack of erysipelas lengthened the time to a week, but I told her that I did not see any use in continuing the catheter. We then contemplated a second operation, but upon inquiry about the escape of urine, after a day or two, I found, to my surprise and gratification, that none escaped unless the bladder was much distended; that if she passed water per urethram, which she could do very well, every three hours, not a drop came the other way, and this improvement continued until she left this country, three weeks after the operation. Within a few days I have heard from the lady, and I find that the relief still continues.

What may be the exact state of the parts, I do not know, for I

was too much afraid of disturbing such a salutary state of affairs to investigate; but though I do not bring it forward as a case of absolute cure, I do think it not only justifies the operation, but affords the greatest hope of future success in similar cases from a like operation.

Until a few weeks ago I thought this was the only example of an attempt to close the os uteri for the cure of a vesico-uterine fistula, but I read in the Report of Dr. Simon that he had performed the same operation with perfect success.

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY[a].

(*Continued from* p. 242.)

SESSION 1858–59.

January 12, 1859.

Dr. O'Connor, President, in the Chair.

On the Use of the Forceps. By William Cummins, M. D.—"It is with the greatest diffidence I approach this important subject, regarding which there is a considerable difference of opinion amongst medical men, a difference which has, I think, increased of late years since the more junior part of the present race of accoucheurs entered the profession; men who are too young to remember the days of meddlesome midwifery,—of dilating, and forcing, and pulling, and every other interference with the natural process of labour; unwarrantable interference, which generally defeated the end for which it was practised, and was too often productive of the gravest consequences; which Osborne, Denman, Blundell, and others raised their powerful voices against as unscientific and dangerous practice, thereby producing a violent reaction against art, which, as is too often the case, became excessive, and rushed into the opposite extreme of neglecting to render assistance, except in cases where nature, struggling against a difficulty, to overcome which *natural* efforts were unequal, had to use an unusual amount of force, far more dangerous to the maternal structures than art for the accomplishment of delivery; or, still worse, became powerless to overcome it; so that too often death had already set his mark upon both the mother and her babe before the timid operator could make up his mind to render assistance.

"Even some of the excellent modern works on midwifery, which are in the hands of every student, bear the impress of this reaction, and point to the horrible train of symptoms which mark powerless

[a] These Reports have been furnished to us by Dr. S. Henry Hobart, Secretary to the Society.—Ed.

labour, or at least its onset, as the index for interference with the forceps; nay, more, this instrument is treated of as so 'dangerous an iron instrument,' that it really requires no ordinary amount of pluck on the part of the young operator to make his first essay with it; the consequence of all this being, that in many cases the forceps is not used early enough to give the infant even a probability of escape, and diminishing the mother's chance of perfect recovery.

"Now it is not with a view to laying down any fixed and certain rules for the guidance of the practitioner in solving the all-important question, as to the time when art should step into the rescue of the patients in any given case, that I bring this matter before the Society; it is more for the sake of hearing the opinions of so many experienced men upon the general principles which have guided me in my own practice, because, for the reasons I have already hinted at, books are not generally to be trusted as safe guides in this matter.

"I have said that there appears to be a gradual revolution at-present taking place as to the period of labour when the forceps should be used; most medical men that I have spoken to on the subject, especially the more junior part of the profession, use this instrument far oftener than the eminent masters under whom they studied, and speak of the operation as anything but a dangerous one. Drs. Sinclair and Johnston also, in their new work, state that there has been a gradual increase in the number of forceps cases in the Dublin Lying-in Hospital of late; and Dr. Hamilton, of Falkirk, in a paper published in the second volume of the Medico-Chirurgical Review for 1853, gives statistics of 300 cases which occurred in his practice, which, when compared with those from other sources, are startling as to the number of infantile lives seemingly sacrificed to delay in using the forceps. It is a pity his statistics are not on a more extended scale; but such as they are, his conclusions from them are sufficiently important to warrant my making the following short quotation from his paper:—

"'We see them (the forceps) used in the ratio of 1 in 120 by Dr. Laurence, Montrose; 1 in 472 by Simpson; 1 in 617 by Collins; 1 in 553 by Ramsbotham, with very nearly the same ratio of mortality, viz.,—1 in 4 or 5; while I have used them in 1 in 7 with no mortality in 43 cases. We see also the result to the mothers upon the whole. Dr. Clay states Collins' mortality over all as 1 in 16; Dr. Simpson's, in the Report of the Edinburgh Lying-in Hospital, is stated at 1 in 22; Dr. Laurence gives 8 in 368, or 1 in 46; while I have 1 in 298. The favourable results obtained by me, I have already said, appear to me to have arisen from the second half of labour having been shortened; and my inference again, therefore, is, not that the use of instruments is to be discouraged in all but exceptional cases, but rather that they should be used sooner and much oftener than is generally done.'

"Now while I think that the comparison Dr. Hamilton has made tends to support the last clause of these remarks, that instruments should be used sooner and much oftener than is generally

done, yet I cannot see by what process of reasoning he draws from them his condemnation of the rule that the use of instruments should be discouraged in all but exceptional cases, for certainly, in the immense majority of instances, nature is fully adequate to the completion of the great work of reproduction.

"It may be said that Dr. Hamilton's cases were not legitimate forceps cases at all, and that thus can be explained his great success; but this is inadequate to a full explanation of it, as his infantile mortality from the labour process, generally including forceps cases, was 1 in 298, far less than any recorded statistics I have seen. However, we must be most cautious not to allow ourselves to be drawn into the error of using instruments more frequently than absolutely necessary by such success as Dr. Hamilton's; extremes of all kinds are bad, and it is especially so in this case, as the temptation is very great for the midwifery practitioner to shorten the sufferings of his patient and the tedium of his own attendance, by performing a brilliant and generally easy operation. It is, therefore, the more necessary, when a revolution is taking place in favour of the earlier use of this valuable instrument, that it should neither be stayed in its progress, nor yet allowed to proceed too far, but that, as far as possible, rules should be laid down for the guidance of the student.

"Now some authorities propose, as a rule, that when the second stage of labour has lasted a certain time, varying from twelve to twenty-four hours, assistance should be rendered; and others, that when certain dangerous symptoms present themselves, the forceps are called for; while others again combine the two, saying that after such a time, if certain symptoms are present, the operation should be performed. Now while there can be no doubt that if even the most incipient symptoms of powerless labour have commenced, we should immediately proceed to deliver, and that such symptoms may arise in a most unexpected manner very early in the second stage, proving that no rules drawn from its duration can be relied upon; yet I think it far from being scientific or safe practice to make either time, or symptoms, or even both conjoined, furnish the rules which are to guide the practitioner in selecting the moment when an operation is most likely to succour the two patients committed to his care.

"Nature has provided that a certain amount of expulsive force is to propel the fœtal head through a cavity admirably adapted to afford the necessary amount of resistance, and lined by delicate tissues capable of sustaining the requisite degree of pressure, under the condition of its being only applied at intervals, to secure which a wise provision exists; nay, more, she has provided that when a difficulty is present which must be overcome, the expulsive force increases for the task; besides not only the soft parts, but the fœtus also, is capable of enduring the increased pressure to a marvellous degree; in fact, they are provided with a balance of endurance over and above what is necessary in purely natural labour; but the medical attendant should never forget that there is a limit to this endurance on the part of both, and that nature, acting with unnatural force—if I

may use the term—may at length destroy the life of the infant and inflict grievous injury to the soft parts of the mother: so that the question for him to decide is not whether nature can complete the delivery, but whether nature or art can do so with least risk to mother and child.

"The resources of his art and the amount of skill which he possesses in their use thus enter into the question; for, being a comparative one, it is evident that the more dangerous is the instrument, and the less skilfully used, the longer must nature be trusted to. I think myself the forceps is far from being the dangerous instrument it has been represented, if used with ordinary care, and that the requisite amount of skill in its application is easily acquired; but more of this anon.

"I have made this digression from my immediate subject, to introduce what I consider the source from which rules can be best derived for fixing upon the critical moment for interference,—the rules, in fact, which influence me in my own practice, and which, though not, perhaps, as definite as could be desired, are, I think, as much so as the subject admits of, for much must necessarily be left to the judgment and discretion of the practitioner in each individual case he is called upon to attend.

"1st. If after dilatation of the os uteri, expulsive pains have expelled the fœtal head to a certain point where it is arrested, the pains still continuing forcible, it is obvious that some obstacle exists to delivery; if, again, it is ascertained that the obstacle is not one which can be removed, such as distended bladder, imperforate hymen, &c., &c., then the practitioner must consider whether nature has had a fair trial, and whether what further he has to expect from her is likely to be more or less injurious to mother and child than assistance with the forceps; and by bearing in mind that though both are capable of enduring considerable pressure without injury, yet that there is a limit to such endurance, especially on the part of the fœtus, he will be able to determine correctly, without reference to time or symptoms, as to when the forceps should be used.

"2nd. If the head is only partially arrested, the same train of reasoning may be brought to bear, with this difference, that we may be more sanguine of nature's completing the delivery without doing mischief, if progress is made, no matter how slight.

"3rd. If the head is impacted, the forceps should be used without loss of time.

"4th. If there is the least symptom of the constitution sympathizing, or if convulsions or other complication, making speedy delivery desirable, be present, the forceps should not be delayed.

"5th. If labour pains have become feeble, or ceased altogether, *without prospect of renewal*, and that *ergot* has failed in exciting the uterus to action, the forceps are necessary, for although in such a case there is not as great danger as when the uterus is acting forcibly to overcome an obstacle, yet there is danger enough to warrant the use of the instrument; and, after all, in cases of this kind the

operation is so especially easy and harmless, that there is no object in postponing it, and it is extremely unwise to wait for the setting in of bad symptoms.

"Now it may be said that Nos. 1, 2, and 5, of these rules are so indefinite that they merely cut the gordian knot, without unravelling it. I grant they leave a large discretion to the practitioner, but what rule in medicine is not more or less indefinite, and how possibly can any definite rule be made for a question into which so many points for anxious consideration enter. But, whatever may be their defects, they are founded upon the leading principles which apply to the question, and, as such, are certainly superior to rules drawn from symptoms which, if possible, should never be allowed to arise, and upon the duration of labour, which are worse than useless.

"I have not preserved notes of my forceps cases previous to changing into the Blackrock district; but, although I had many trying cases, I do not remember having lost any of the children, and certainly no mother ever suffered from the operation, or was more tardy in convalescing than in natural cases. Since coming here, a period of three years, there have been 236 births among the poor of the district, which, although generally attended by midwives, certainly came under my immediate care, whenever the labour was at all protracted. Of these, there were five forceps deliveries, or 1 in $47\frac{1}{5}$; four of the children were born alive, and did well; the fifth, a very complicated case, although alive when the head was born, perished from long delay before the shoulders could be extracted, so that we may conclude the forceps had no share in the death. All the mothers convalesced rapidly. These statistics, although on a very small scale, tend to bear out the views of Dr. Hamilton; for the proportion of forceps cases is much greater than that of Ramsbotham, Denman, Collins, &c. &c., and the mortality less; while, if they had been left to nature until dangerous symptoms arose, or until the time which midwifery works recommend had elapsed, the mothers would have suffered much more and run greater risk, and I am sure many of the infants would have perished. It is a point not to be omitted, too, that the horrible alternative of using the perforator only occurred once, and that for a hydrocephalic head.

"There is a peculiarity in my mode of using the forceps, which has facilitated its application so much in my hands that I shall not apologize for detailing it. I believe it was suggested to me by the manipulation of dexterous surgeons for avoiding the triangular ligament in introducing a catheter into the male urethra; however, I find, on inquiry, that I cannot claim originality for it, as my friend, Dr. O'Brien, of Monkstown, who is celebrated for his skill with the instrument, informs me that he has been in the habit of using it in the same way for many years with the greatest success. Dr. Churchill also makes some allusion to a similar process, in his admirable work on Midwifery, in cases where the *head is situated very low down;* it is simply to pass each blade in turn upwards *in the hollow of the sacrum* between the two first fingers of the left hand and the

fœtal head; next to carry the handle, with a gentle sweeping motion, holding it very loosely, and depressing or raising it according as it is the upper or lower blade, towards the perineum, a motion which will oblige the blade to slip, of its own accord, over the head into any position that may be desired, without its convexity being jammed against the tuber ischii, where its point first impinges upon the head, as it is sure to be if the tuber is not avoided in the manner I have described. The forceps I use is slightly curved; its length in the blade is $8\frac{1}{4}$ inches, and the handle $5\frac{1}{2}$, in all $13\frac{3}{4}$ inches; it is rather too short for operations above the brim, especially if the head is larger than natural: but the less the forceps is used before the head has entered the brim, the better, except in cases where, with a probability of saving the child, the crotchet is the only other alternative, for it is often impossible to ascertain the size and condition of the head, or its position, with any degree of accuracy.

"Two cases have occurred to me where, from the great size of the head *above the brim* (one hydrocephalic, the other that of a child which weighed $12\frac{1}{2}$ lbs.), the handles could not be made to come quite *close* together in any position, although they locked perfectly well; in both cases the blades slipped off when powerful traction was made; were reapplied more than once with the same result; and in the latter only was delivery completed with the forceps, the child being dead. I think, *under such circumstances*, it is better at once to terminate labour with the perforator and crotchet, after the forceps has once slipped off, rather than risk repeated applications of the instrument for the very slight prospect of the child being born alive. This opinion may be dissented from, but although both these cases recovered without a bad symptom, such could scarcely have been anticipated; and my experience of the suffering they endured, and the risks they ran, would make me hesitate before subjecting any *similar case* to a repetition of the forceps *above the brim*, with so small a probability of saving the infant.

"In conclusion, permit me to express a hope that in recommending the earlier and more frequent use of the forceps, I have not been misunderstood to sanction any operation, except in cases where such is *decidedly* less dangerous to mother and child than the continued operation of nature unassisted: for while I object to the rule, never interfere as long as nature is equal to the delivery—because I know that in terminating the process under difficulties nature may do irreparable injury to her charge, far more than art—yet I think that in all cases the use of instruments should be postponed *to the last moment* consistent with the welfare of the mother and her offspring.

"P. S. Since the above was written, I have had another forceps case, in which the blades were readily applied in the manner above suggested, the result being most favourable to both mother and child."

January 26, 1859.

Dr. Gregg, Vice-President, in the Chair.

Cases of Lead-poisoning. By Professor O'Connor, President. —The following is a brief abstract of three cases of lead-poisoning treated in the Mercy Hospital. In the first there was complete debility of the forearm, affecting particularly the extensor muscles, but also such weakness of the muscular system generally as almost precluded the patient from walking, or even standing for any length of time. There was great pallor of the countenance; some degree of emaciation, with loss of appetite, and a feeling of despondency. The treatment, which was successful in about five weeks, consisted of sulphur baths, purgatives, followed by tonics, both of iron and quina; and, when the general health was improved, strychnia, both internally and externally.

The second case was that of a man in the same employment as the person just referred to, namely, that of a gas-fitter. He applied for relief for severe pains in the abdomen and constipated bowels, and loss of appetite. The inspection of his gums left no doubt as to the character of his disease, rendered probable by the nature of his employment. This case quickly improved under the use of baths, purgatives, and tonics.

The third case was that of a woman with an exteusive burn on her back, which was dressed for several weeks with the acetate of lead ointment. The blue line on her gums attracted attention sufficiently early to prevent a perseverance in the use of the ointment, which would soon have produced the worst symptoms of the disease.

Professor O'Connor made the following remarks in reference to these cases:—"It will be seen, from what I have just read, how unsuitable are the names occasionally given to this disease. The designation of 'painter's colic' is inappropriate, as many of the cases never suffer from colic pains, and equally so is that of 'saturnine palsy,' which only affects the patient when the poison exists for a long time, or in large quantity in the system. The only general characteristic is a cachetic condition, which is recognised to be the result of lead-poisoning from the peculiar blue line that marks the gums in all cases. If this very easily recognisable sign were known generally to the workers in lead, many would be warned in time to desist from habits which may ultimately lead to the ruin of their health. How fortunate if we had any similar mode of recognising the cause of the cachexia that precedes the more palpable manifestation of scorbutus, syphilis, tubercle, and many other diseased conditions of the system, so that our treatment may meet the disease in its nascent form! One of the most striking facts connected with this disease is, that the poison exerts its influence principally, if not entirely, on the extensor muscles of the forearm. How is it possible to explain why a poison circulating in the blood, affecting the digestive organs, and sometimes the brain, should fix on a certain set of muscles not in closer relation with it than any other? Seeing the utter impossi-

bility of explaining, or even of crediting such an anomaly, I am disposed to question its accuracy, and to assert that the greater weakness of the extensors might be explained without assuming that they were more deeply imbued with the poison than were other muscles. In the first place, we find that when the patient is very much under the influence of the poison, all the muscles of the body are more or less affected, as illustrated by the first case related. 2nd. We must observe that the muscles of the forearm are employed in a finer class of movements than the other muscles of either extremity, and that debility in them is therefore more apparent. 3rd. Comparing the flexors and extensors of the forearm, we find the former are more than double the size of the latter, and are supplied with a proportionately large quantity of nerve matter; also, that the flexors are more energetically affected in all the employments of life, the extensors being scarcely used except to replace the fingers in a position for renewed action. For all these reasons we may readily suppose that if both sets of muscles were equally affected by the poison, the flexors must longer resist its influence; and observation shows that the difference is only in degree, for neither set of muscles retains their normal power. A fact illustrative of this point is the position of the arm and forearm when all voluntary power is withdrawn from them in hemiplegia. Here the fingers and forearm are flexed, the stronger antagonist muscles prevailing over the weaker, when organic contractility alone acts. May not the opisthotonos of tetanic cases be more readily explained by attributing it to the greater mass of extensor muscles which are all through life employed in sustaining the upright position of the body, than by supposing that the nerves distributed to these muscles were specially under the influence of the disease?"

February 9, 1859.

Dr. O'Connor, President, in the Chair.

Case of Tumour growing from the Rectum removed by the Écraseur. By Thomas Gregg, M. D., Surgeon to the South Infirmary.—"Mr. W., aged 58, consulted me in consequence of what he called piles; he was a man of active habits, being a resident in the country, fond of hunting, shooting, &c.; he always lived well, and generally, up to the period of his first attack (about two years ago), took two or three tumblers of punch. Since then he has entirely left off this latter habit; he was a man that had always enjoyed good health, very robust, inclined to fat, and of florid complexion; he had in an earlier period of his life been very much annoyed by varicose veins, particularly in the right leg; about two years since, he was attacked with diarrhœa, which was followed by hemorrhage from the rectum, accompanied by pain in the part, increased upon lying on his back; since this time he has never had a solid discharge from the bowels, which generally were evacuated three or four times during the day, and frequently as often during the night, and

always attended with considerable hemorrhage, which he informed me was very considerable every time, so much so as to saturate his clothes with blood, making, as he says, his life miserable. The pain has not, however, increased in severity since the first; about six months since he perceived the tumour outside the anus, and considerable prolapsus of the rectum, which he immediately returned; and it required his manipulation whenever the bowels were evacuated. Finding his strength declining, he came to Cork, and consulted Dr. Townsend and myself; I had known him when in good health, but had not seen him for the last three or four years, and so great was the alteration in his appearance that I would scarcely have known him; from being a very large man, and, as I said before, florid, he is now emaciated, with an anxious, pale face, lips livid, eyes sunken, pulse feeble, 100, but regular, tongue and gums pallid; in fact, he has all the appearance of a man labouring under some organic disease; the stethoscope, however, proves both heart and lungs sound; there is no enlargement of the liver. On his relating his history, we examined the rectum, where a tumour about the size of a hen's egg, with a broad base, was discovered, exceedingly vascular, bleeding at the slightest touch, the hemorrhage not easily restrained. The tumour, which I present this evening to the Society, was firm in feel, and to all appearance looked like a malignant growth; it was determined, however, in consultation to remove it, as the principal symptoms he laboured under were produced by excessive and long-continued hemorrhage, which, if not restrained, must inevitably terminate his existence. Accordingly, the next morning, 3rd February, I removed the entire mass by means of the écraseur; he did not suffer much pain during the operarion, and as soon as the tumour was strangulated by the chain, all hemorrhage (which before was very considerable) immediately ceased; he was ordered an opiate, and in the evening he was most comfortable. On visiting next morning, he said he slept well, what he had not done for months; his bowels were not disturbed until the morning, and he expressed much surprise that there was no bleeding, nor was there any prolapsus of the rectum. I examined the part to-day, now sixteen days after the operation, by means of the speculum, and the rectum is perfectly healed, and no appearance of any new growth; he requires, however, to take the opiate during the day, as the mucous membrane of the large intestine is still irritable, the matter passed from the bowels being still very fluid, offensive, and in great quantity. So far as the operation is concerned, I look upon it as most successful, both as to restraining the hemorrhage, thereby in all probability adding a few more years to his life, as well as considerably conducing to his personal comfort."

Dr. Finn communicated the following case, and exhibited pathological specimens:—

Anasarca; Albuminuria; Hypertrophy of both Kidneys; Incipient Disease of the Suprarenal Capsule; Subarachnoid Effusion.—Robert Jennings, aged 44, of very tall stature, and moderately

stout conformation, was admitted for the third time on the 13th December last, into the North Infirmary, labouring under anasarca and albuminuria; on this, as on the two former occasions, the œdema commenced in the face.

History of Case.—He had been a soldier, and served during the Crimean campaign, and in the trenches before Sebastopol; he stated that he suffered much from the many privations which signalized the early period of the siege; had been very intemperate in his habits, and was invalided at the close of the war for a sore leg, which subsequently healed up; since the date of his last admission to hospital to that of his death, he suffered both from diarrhœa and irritability of stomach, the latter symptom having resisted the several modes of treatment employed for its relief; about three weeks before death effusion into the cavity of the peritoneum was superadded to the symptoms already noticed; on the 26th January, convulsions supervened, which continued almost uninterruptedly to the following morning, when he was released from his sufferings.

Post-mortem.—On separating the abdominal parietes, a considerable quantity of serous effusion escaped. Both liver and spleen were much congested; the latter was much increased in volume. The stomach appeared to be diminished in capacity; its lining membrane, which was rather irregular and corrugated, was generally pale, with the exception of the lesser curvature, which was the seat of considerable congestion; both kidneys were remarkably enlarged; the surface, however, was smooth and pale in both; the right kidney weighed twelve ounces, six drachms, and one scruple; the cortical substance was pale and slightly granular; the medullary portion was highly injected. Examined under the microscope by Professor Corbett of this city, the renal blood indicated a decided increase of the white corpuscles; the right suprarenal capsule presented a deeper shade than in the normal state; it was moderately increased in size, and its interior contained a small quantity of dark sabulous matter; in the brain was found some subarachnoid effusion, and the cerebral matter appeared to participate, but to a less extent, in the general congestion.

Remarks.—It is worthy of remark, that the gastric disturbance above noticed only manifested itself during this patient's final illness, though it is to be presumed that the conditions favourable for its production, viz., congestion of the several adjoining solid viscera, had been in existence for a long time previous. A question suggests itself, whether there existed any relation between the *incipient* structural change in the suprarenal capsule and this symptom? In the group of symptoms, which Dr. Addison associates with disease of the suprarenal capsule, he assigns a prominent place to irritability of stomach. In this case no discoloration of the skin was observed.

Hemorrhage supervening upon the Extraction of Teeth. By Mr. Grattan.—"It is of two kinds, venous and arterial. The former

is one of not very common occurrence, but, when it does happen, it is sometimes very embarrassing. I have found it to arise in two kinds of constitutions—the young and plethoric, and the old and infirm.

"Case I.—Mr. ——, a medical gentleman, called upon me, stating that he had a very bad dens sapientiæ in the lower jaw, which he wished to have extracted; he was of a full, plethoric habit, and sanguineous temperament; the tooth was perfectly firm, very much decayed, and strongly bound down by fibrous bands extending from the lateral ligament. I had to separate all the attachments, and on applying the forceps, the tooth was easily extracted. Venous hemorrhage immediately took place, and in less than ten minutes he lost over eight ounces of blood; it ran from the mouth just in such a stream as it would flow from the opening of a vein in the arm; on applying a steady pressure, and approximating the parts for about two minutes, then giving him as hot water as he could possibly bear to hold in his mouth, all bleeding ceased; he was perfectly free from all unpleasant symptoms in about ten minutes; the hemorrhage did not return.

"In the old and infirm, the state of parts are entirely different: the teeth, many of them, loose and ulcerated in their sockets; the gums generally much swollen; great fetor from the breath; the system rapidly breaking down.

"Case II.—Mr. ——, a gentleman about 72, called on me; he stated that he had a very loose tooth in the lower jaw, which gave him a great deal of annoyance, and that I would have no difficulty in extracting it. On examining the mouth, I found the gums all swollen, the mucous membrane paler than in sound health; there was ulcerative action going on in nearly all the alveolar sockets; the tooth that was annoying him was the second molar in the under jaw; on its removal, venous hemorrhage at once set in, and he lost about ten ounces of blood in a very few minutes. As in the former case, compression and very hot water were the only means used; all bleeding ceased in about twenty minutes. These two cases will sufficiently illustrate venous hemorrhage; it is not a common occurrence, and I have never found it to occur except in the two posterior molars of the inferior maxilla.

"The other kind of hemorrhage is arterial; it is not of unfrequent occurrence, and I have found it to occur oftener in cold than warm weather; the bleeding generally does not take place at the time the tooth is extracted, some hours intervening—from six to twelve. Constantly the patient will be settled for the night, when he will find suddenly his mouth filling with blood, the bleeding constantly continuing, though using every means in his power to repress it.

"Case III.—Mr. ——, a gentleman of about 19 years of age, very tall and delicate, called on me about 10 o'clock in the morning, to extract a molar tooth from the superior maxilla; the tooth was a very large one, but otherwise offered no difficulty to its removal. He left me in about twenty minutes, quite well and free from all

bleeding, and remained so up to 8 o'clock at night; the blood then commenced to flow from the alveolar cavity, and continued to do so during the entire night; at half-past 8 in the morning he called at my house to know what was to be done to stop it. He evidently had lost a large amount of arterial blood. He had a hemorrhagic pulse; lips pallid; and an anxious cast of countenance. On examining the mouth, there was a large fibrous tumour, having its origin in the cavity of the maxilla; it was about the size of a pigeon's egg, forcing the cheek outwards; fibrous bands extended from it, and were interlaced around and between the teeth; on touching any portion of the tumour, arterial blood flowed from it, though no pulsation on moderate pressure was perceptible; on a more firm pressure you could feel a slight pulsation, and at the root of the mass it was very strong, pressure there causing jets of blood to issue from various points of the tumour. The treatment adopted was using steady pressure along the line of the jaw, using both forefingers; by this means I separated the whole mass, leaving sufficient to fill the alveolar cavity. You must not allow any of the clot to be above the edges of the gum. I then gave him some hot water to hold in his mouth; the temperature of it must be as high as 130 degrees; at that heat it is a most powerful styptic. All bleeding ceased in about three minutes, and he left me well, but on going up stairs to bed, as I directed, he fainted. I had him fed on mutton-chops and porter; for three days he could not get into the erect position, giddiness coming on. I think he was more than a fortnight before he recovered the loss of blood.

"I could give you other cases, all bearing on the above. In hemorrhage no caustic should be applied; all of them I have found to do mischief. If the bleeding should continue after the removal of the fibrous mass, lint steeped in a strong infusion of matico and placed over the cavity from which the tooth had been extracted, so that when the mouth is closed, pressure will be made on the part, will cause all bleeding to cease in the course of an hour.

"Case IV.—Miss B., aged about 20, came to me to have a molar tooth extracted from the lower maxilla; she had been suffering toothache for over four weeks; the tooth was very firm, and required a good deal of force to remove it; she left me about 11 o'clock in the morning, and had no hemorrhage during the entire of the day. About 9 o'clock at night it came on, and continued until I saw her on the following day, about 12 o'clock. She was in bed, very much frightened. Countenance very anxious; pulse hemorrhagic. On examining her mouth, I found a large tumour, the fibrous bands of which were wound round the teeth, some of them extending to the back of the fauces, causing a feeling of constriction, with an inclination to discharge the stomach; on compressing the tumour, jets of arterial blood came freely from its surface at various points; towards the base pulsation was very strong; on removing it as in the former case, by using the fingers, I found that in one point the clot in the cavity was not quite perfect; from one small opening arterial blood issued; I compressed the clot firmly down, and gave

the patient very hot water for about five minutes; the jet ceased almost immediately, a very trifling oozing remaining, which, by covering the part with some lint dipped in the infusion of matico, stopped altogether in a few minutes. She had no return of hemorrhage, and, except for a little debility, she was quite well the following day."

March 9, 1859.

Professor O'Connor, President, in the Chair.

Case of Temporary Hemiplegia caused by the irritation of Lumbrici in the Stomach. By John Williams, A. B., M. D.—"Affections of the nervous system are now happily assuming a material form, and the vague assertion, 'it is some nervous affection,'—so convenient a term when doubt existed as to the nature of many cases,—which now exhibit themselves in characters that can be deciphered, is rarely indeed employed as the cloak of mysticism. But, although rapid strides have been made in reducing to what is tangible, affections that previously were almost imaginative; and eliminating from a chaotic mass of signs and symptoms those which are characteristic of diseases of the nervous system now easily recognisable—thanks to those careful investigators, who well may boast of including within their ranks the name of Robert Bentley Todd—yet, there still remain many affections of the nervous system—functional derangements, which cannot be easily accounted for, and on which pathology has, as yet, shed but a dim and uncertain light. Why it is, that from continued mental depression derangements of the cerebro-spinal system assume forms so varied, differing not only in degree but in kind, is not as yet demonstrable; will it ever be so? Why it is, that a like diversity is to be seen in those nervous affections that result when the powers of the system are reduced to a very low ebb from many other causes, the duration of which is either long continued or transitory, is to me inexplicable; and likewise does an impenetrable veil hide the causes of the variety, so frequently to be met with, in those functional derangements of the cerebro-spinal system which result from reflected peripheral irritation. Why is this the case; and shall a clear light ever dispel this darkness? I fear not, and for many reasons, but particularly that we have effects alone to deal with—the cause in too many instances remaining undiscovered, or else unrevealed until a considerable period has elapsed after the effects have worn away. And another reason, an obvious one, is, that in very many remarkable cases which had a fatal termination, the most carefully conducted dissection found nothing to disclose as even a remote cause. In early life, one of the most fertile causes of perverted nervous function is the irritation caused by worms in the intestinal canal. But can we decide with certainty that in a given case such and such effects are due to such a cause. We could hardly do so, and surely in after life greater difficulty would be experienced in assigning with accuracy a given nervous affection to a like cause. Without further remarks, I shall proceed to relate the following case:—

"On Saturday, November 6, 1858, I was consulted by Mary Scully, aged 34, a married woman, mother of seven children, and apparently in good health; she said the object of her visit was for advice about 'a fit' which she got, for the first time, fourteen days ago, and which had occurred again on the night previous to her visit. On inquiring particularly as to the exact nature of this 'fit,' I learned from her that, on the evening of Friday, October 22, she experienced a sensation of tingling and numbness in the little and ring finger of her right hand, and very quickly after the hand and arm fell powerless by her side. Soon after, she found the power of the right leg gone, and the mouth and right cheek dragged to the opposite side; she tried to speak, but could not remember words to express her thoughts; at last, after a little while, she became insensible, and remained in that condition for half an hour. These formidable symptoms then began to wear off, and next day she was as well as ever; the only thing that troubled her was an unpleasant feeling in her throat, as if there was—as she expressed it—'a piece of undone beef stuck in it.' She continued well until October 30, eight days after the attack; on this day she complained much of the unpleasantness in her throat, and at length, her stomach sickening, she threw up a lumbricus, which her husband measured, and found to be 10 inches in length. Nothing particular occurred for a week after, but at the end of this time she again experienced the same tingling and numbness as before in the fingers of the same hand; perfect paralysis again took place, but the insensibility in this—the second attack—lasted for an hour; again all the symptoms passed off, and when she visited me next day, the only thing she complained of was, slight weakness in the right hand and arm, and the unpleasant feeling in her throat. She was fully impressed with the notion that a piece of beef, of which she had lately partaken, was stuck in it. Save these two symptoms, I could not detect anything else wrong with her; her menses were regular, appetite tolerably good, bowels not disordered, appearance by no means indicative of hysteria; therefore, I naturally concluded that these attacks of temporary but complete hemiplegia were the result of irritation applied to peripheral branches of the eighth pair of nerves, and thence reflected to the nervous centres. Be this as it may, one thing is certain, that lumbrici, in the alimentary canal in an adult, often give rise to very formidable affections of the nervous system, and, as I before remarked, effects only are to be seen, the cause in many cases being hid. I ordered this woman turpentine in emulsion, to be followed by an oil and turpentine draught; she continued quite well until February 8, when she threw up a second lumbricus, not so long as the first, but nearly so; she has not since had any symptom to complain of. I have styled this case one of 'temporary hemiplegia,' and adduce it as one in which a correct prognosis was impossible; there were no indications before the attack of the presence of worms in the alimentary canal; the patient was not subject to them when a child; the hemiplegia was complete; the insensibility proved the implication of the brain; it was not spinal hemiplegia, certainly not hysterical; and I

therefore ask, to what cause could it be referred by a surgeon who was called in to treat the case before the lumbrici had been ejected?"

FEBRUARY 23, 1859.

PROFESSOR O'CONNOR, PRESIDENT, in the Chair.

DR. FINN communicated the following case, having previously introduced the subject of it (then convalescent) to the notice of the Society. On this occasion the several members who were present availed themselves of the opportunity thus afforded of observing the phenomena to be referred to.

Bronchitis; Emphysema of the Lungs; the Inspiratory and Expiratory Theories of Emphysema.—Denis Magrath, aged 50, a carpenter, was admitted into the North Infirmary on the 3rd January, labouring under bronchitis and emphysema of the lungs. He stated that he suffered, about five years ago, from an attack similar to the present, but more severe, and that, since that period, he has not been wholly free from cough, particularly during the winter season. The symptoms, on the occasion of his admission, were: severe cough, with very scanty expectoration. The pulse was not accelerated; tongue clean; appetite impaired; a disinclination to make use of animal food. The chest was preternaturally resonant, and the auscultatory signs were similar to those generally observed in emphysema of the lungs. The two lower thirds of the neck were so increased in volume from time to time, during respiration, as to suggest the existence of disease of the thyroid gland. This tumour, which was resonant on percussion, disappeared during inspiration, and returned during expiration, its volume being considerably augmented when the expiratory act was forcible. The jugular veins presented a permanent state of turgescence, but no refluent movement of the blood was observed to have occurred.

Remarks.—The respiratory phenomena above noticed are opposed to the conclusions arrived at by Dr. Gairdner relative to the mechanism of emphysema of the lungs. Dr. Gairdner[a] maintains that the *expiratory* act is mechanically incapable of producing distention of the lung, or any part of it, and refers this result to the exclusive agency of *inspiration*. In this instance the expiratory act developed at the lower part of the neck a tumour which almost wholly subsided during inspiration; and that the tumour in question consisted principally of lung tissue, the clear resonance referred to may be regarded as conclusive evidence. The limited superior-costal mobility appeared to mar the effect of the inspiratory movement, at least in the corresponding parts of the chest; whilst at the same time the angle at which the inspired air diverged towards the apices of the lungs probably exercised a concurrent influence in producing a similar result. The phenomena observed in this case are in accordance with the views of Dr. Jenner, who holds that the expiratory act is the cause of emphysema[b].

[a] Monthly Journal of Medical Science, July, 1851.

[b] Paper in the Medico-Chirurgical Transactions, vol. xl. 1857.

On the Employment of Alteratives in Acute Diseases. By Charles Higgins, M. D., Paris.

In the strict sense of the word most medicines might be called *alteratives*, but custom limits this term to a small number, of which I propose to speak. I consider the class of alteratives to be very important, and of great value, and I attribute the origin and progress on the Continent of the absurd system of homœopathy, partly to the neglect of their use. Patients whose state required the administration of these remedies received only gum-water at the hands of the disciples of Broussais, while the practitioners of the old school prescribed for them excessive doses of nauseous purgatives, ill suited to their habits; nothing could be better calculated to dispose them favourably towards a deceitful charlatanism, which promised to cure them with minute doses of medicines compounded with saccharine substances, so as to render them agreeable. This method, equally and more than the would-be doctrine, influenced the great majority of patients; for the most philosophical individual, indifferent as he may pretend to be, prefers to endeavour to cure himself by the administration of a saccharine globule, rather than with castor-oil or infusion of senna.

The physicians of our age are too much inclined to regard alteratives as applicable only in chronic, or at least apyrexial affections. Doubtless it is in such maladies that alterative medicines are chiefly indicated; but I am perfectly convinced that they are also most useful in certain acute diseases, when the inflammation is slow in resolving.

We possess medicines whose action influences the peristaltic movements of the intestines; others which act upon the skin; others on the kidneys; and others again upon the nervous and circulating systems; and it might be supposed that with such resources in our hands, we are sufficiently armed successfully to combat most diseases, at least those which are curable. This is almost universally the opinion throughout the Continent of Europe, and there are only a few chosen spirits who dissent from it.

Many individuals recover from inflammatory diseases and prolonged typhoid fevers, without having been treated with alteratives. But, notwithstanding this fact, I am strongly convinced that thousands of valuable lives might be preserved by the judicious administration of medicines of this class. If I am asked the *modus agendi* of these remedies, I confess my ignorance, and moreover, I believe that their precise mode of action will never be known. But their utility will appear incontestable to every unprejudiced mind. Let us suppose ourselves at the bedside of a patient affected with acute inflammation of one of the organs essential to life; he has lost as much blood as his constitution will admit of; contra-stimulant medicines have been given, and revulsive means have been employed in the form of blisters; the patient has been purged; he has taken diaphoretics and diuretics; he is better, much better than he was at the commencement of his illness, but infallible symptoms show

that the inflammatory condition is not wholly subdued. At this point of the disease, the immense majority of continental physicians determine to leave the cure, at least for the time, to nature, contenting themselves with prescribing perseverance in the use of emollients. This line of conduct I myself have often followed, and I would still follow it; but success depends entirely on the degree of inflammation which continues, combined with the influence which the morbid poison has exercised on the vital functions. The judgment of the physician is here called into play. If there is the least fear as to the ulterior resolution of the inflammatory state, the moment has arrived for the employment of alteratives; and their good effects will almost invariably be manifested after some days, not by evident action on the emunctories, but by insensible, though not less real effects. Lowering of the pulse, a gentle moisture of the skin, greater humidity of the tongue, evident improvement in the function of the affected organ, more rest, and an unmistakable feeling of relief on the part of the patient, bear testimony to the benefit derived from the treatment.

What then are the alteratives endowed with such advantages in the treatment of acute diseases? The two agents, *par excellence*, are mercury and antimony, substances which, if judiciously administered, will save the lives of thousands, as they have already done; and if some ignorant practitioners have abused mercury, that is no reason for proscribing that valuable medicine.

The fact is, that it is impossible properly to practise the art of medicine without using mercury as an alterative; the incredulity of many physicians in reference to this point is truly deplorable. I am convinced that numerous patients sink under typhoid fever, who might be saved by the use of alteratives. Take a case of fever of that description; with some gentle laxatives we have succeeded in keeping the bowels open; we subdue the cerebral excitement by the application of cooling lotions, and sometimes by full-length tepid baths; we keep up a slight revulsion on the extremities by the occasional application of sinapisms. In case of thoracic or abdominal complication we use, according to the degree of irritation, either emollient cataplasms, small local bleedings cautiously employed, or blisters. Nothwithstanding all these means, the fever continues, and although the functions of the intestine may be discharged, either spontaneously or with the aid of emollient enemas, the secretions discharged from the intestinal canal are far from natural; the colour of the matters is bad, their odour is offensive; the patient's strength will bear no more purgation. How then can we restore the normal state of the secretions? This can be effected only by the use of alteratives. Some physicians pay too little attention to the modifications presented by these secretions; but I have too often witnessed excellent results from the judicious employment of alteratives in inducing the return of their normal condition, not to be convinced of the great utility of this class of remedies.

The two alterative medicines capable of hastening the resolution

of acute diseases are, as I have already said, mercury and antimony, the former especially. When we reach the later stage of the disease, calomel ought to be administered in doses varying from 0·046 of a grain to half a grain (according to the age and condition of the patient), repeated every two, three, or four hours. If the calomel should tend to relax the bowels, this effect will be prevented by the addition of a minute quantity of opium, for example, of the watery extract. The slightest action of mercury on the salivary glands requires the immediate discontinuance of the remedy. Should the skin be dry, about equal doses of antimonial powder, or, better, of the preparation long known under the name of James' Powder[a], should be added to the calomel; such a combination will probably produce a gentle moisture. But the antimony must be omitted if the diaphoresis should be excessive, or if the depressing action of this agent should produce debilitating effects. It frequently happens, however, that calomel, given in alterative doses, manifests its salutary action spontaneously in an amelioration of the general state of the patient.

Antimony, which is a medicine more debilitating in its effects than many, ought not to be continued long as an alterative. I repeat "as an alterative," because, when it is given as a contra-stimulant, for example, in pneumonia, the duration of its administration must depend upon the resistance of the inflammation. In chronic affections certain preparations of antimony may also be given for a tolerably long time as alteratives. Such, for instance, is the combination known by the name of compound calomel pill, or Plummer's Pill[b]. At present I am speaking only of the use of this medicine in fevers or acute inflammations, after the most alarming symptoms have yielded to the action of depleting remedies, of purgatives and emollients; in a word, I am treating of its employment as an alterative.

Digitalis is likewise given by some practitioners as an alterative, in acute diseases, either alone or combined with calomel or antimony. But its well known action on the circulation induces me to attribute its salutary influence exclusively to its sedative effects.

I am acquainted with no alterative agents in which so much confidence may be placed, in the treatment of acute diseases, as in mercury and antimony. In this respect I would make an exception

[a] It is admitted by all English practitioners that the preparation called *James' Powder*, which is kept secret and sold at a high price, is much more efficacious than the *Pulvis antimonialis* of the British Pharmacopæias, or the white oxide of antimony of the French Codex. The diaphoretic effect of true James' Powder seldom fails, while the action of the two others is more uncertain.

Frequently English physicians, in prescribing James' Powder, designate it by the name of *Pulvis Jacobi*. This dash of erudition is to be regretted: "James" is equivalent to *Jacques* in French, and *Jacobus* in Latin; but in this particular case it is a proper name [surname?]; and Dr. James' fellow-countrymen ought to respect the name, particularly with a view to prevent mistakes in the compounding of medicines. —*Note du Rédacteur.*

[b] Plummer's Pill is composed of calomel and golden sulphuret of antimony, of each, one part; guaiacum in fine powder, two parts; treacle, two parts.

in favour of quina; but the opportunity for using the latter alterative is much more limited; it is not admissible so early. It is generally when all danger is past that the tonic power of quina produces excellent results, removes any tendency to remission or intermission, and restores the strength.

As a general rule, the administration of mercury and of antimony is indispensable to the treatment, at least to the cure of the majority of acute diseases. The time for their employment is usually later, but sometimes the same, as that for the adoption of depleting measures.

The obstinate prejudice which still exists against mercury, except as an antisyphilitic agent, is inconceivable; however, some of the most enlightened physicians are beginning to yield to instruction, as they now give ten times more mercury than they prescribed twenty years ago. The introduction of this powerful alterative into ordinary practice must be the work of time, for Fontenelle has said: "Truths are wedges which we must make enter by the large end."

How could fractional doses of calomel prove injurious? The thing is almost impossible. If the mucous membrane should not bear even these small doses, blue pill, the action of which is milder, might be substituted for them, or frictions with mercurial ointment might be employed.

Antimony, moreover, is an admirable medicine, which may be given either alone or combined with mercury. As a contra-stimulant in acute diseases, and on account of its diaphoretic qualities, it is often indicated. Suppose we have to treat an affection of the intestinal mucous membrane in an exhausted individual, we wish to produce diaphoresis without fatiguing this membrane, which is in an irritable state, and without subjecting the patient to the annoyance of drinking a large quantity of ptisans, give him a grain and a half or two grains of James' Powder, combined with half a grain or less of calomel, and you will generally cause a salutary determination to the skin. If, on account of the idiosyncrasy of the patient, we do not think it prudent to give the smallest dose of mercury, antimony alone will, generally speaking, have the desired effect. Experience has shown that its action is largely assisted by the addition of small quantities of calomel; the same thing has been observed with respect to the principal diuretics. It is almost superfluous to add that, if antimony administered as an alterative, and consequently in small doses, should give rise to diarrhœa, or even to a slight relaxation of the bowels, which, in an enfeebled patient, might be considered hurtful, its use should be immediately suspended or discontinued.

It is no exaggeration to say, that without mercury and antimony it would be difficult properly to treat the immense majority of pyrexial affections. We might even repeat, with respect to mercury, what was long since said of opium, that it is a gift of heaven. Its action is difficult to explain, for it is equally salutary in apparently opposite states. Thus, if there be hypersecretion of bile, calomel given in the dose of from two and a half to three grains,

which ought to be its maximum, will expel it from the intestines; while, if there be diminution of the biliary secretion, manifested by a whitish colour of the fæces, the same dose of the mercurial salt will restore the exhausted secretion. I do not mean to advise the administration of calomel alone as an aperient, for experience has shown me that this salt always acts more gently, and, at the same time, more efficaciously, when combined with rhubarb, scammony, or aloes. But the proof of the specific action of mercury, and of the necessity for its employment, is that these purgatives will rarely restore the biliary secretion to its normal state, without the addition of calomel or blue pill. When they alone are sufficient, it is almost always the indication of a vigorous constitution in the patient, and we know the efforts of which nature is capable. But in large cities like London or Paris, the spontaneous action of the system is seldom energetic enough, and often requires the assistance of art.

The use of mercury or antimony as alteratives in acute diseases is counter-indicated by the existence of ulcerations on the mucous membrane of the mouth. Before having recourse to these medicines, this complication should be removed by the use, for example, of chlorate of potash. We must not, however, carry this precaution too far, for if these ulcerations are attended with a decidedly bilious state, calomel or blue pill, mixed with one of the aperients already mentioned, would be most useful. They should then be given in a purgative dose, in order that they might be immediately eliminated, that is to say in a few hours, by a saline aperient, such as a solution of sulphate of magnesia, or of tartrate of potash and soda, or of lemonade of citrate of magnesia. Given in this manner, the action of mercury on the ulcerated membrane is very salutary, and tends to promote its cicatrization. If we omit the use of the liquid purgative, we cannot answer for the effects of the mineral agent on the salivary glands, and we may do more harm than good.

The influence of antimony on the salivary glands is much less energetic than that of mercury; nevertheless, it should be administered prudently, and with the same precautions. Certain idiosyncracies (although but few) can bear neither one nor other of these mineral substances, which should be regarded as another contra-indication. Even in the case I have supposed of latent contra-indication, the doses I have advised cannot lead to any permanent mischief, if the patient is attentively watched by his medical attendant, and if the use of the remedy is immediately suspended.

In such cases, alkaline waters, particularly those of Vichy, may be advantageously substituted in doses varying according to the age of the patient, and the tolerance of his stomach.

With regard to the doses of mercury and antimony which I have indicated as yielding the alterative effects of these agents, they are the result of long experience. These doses may vary from 0·046 grains to half a grain of calomel; for example, in larger doses it will purge, in smaller its effects will be imperceptible.

If alteratives are very useful in the treatment of acute diseases, it may be said that they are still more so in chronic affections, for their employment is more frequently indicated in this latter class. These agents constitute, in fact, the foundation of the treatment of chronic diseases, while in acute maladies they are, though valuable, only auxiliary remedies.

It would be foreign to the aim of this paper to enter into the details of all the chronic affections in which alteratives are indicated; I shall content myself with enumerating a few.

Functional derangements of the biliary and other secretions connected with the act of digestion are perhaps the ailments in which alteratives are most useful.

We constantly see such instances, where purgatives have relieved the patient, but have not restored his functions to their normal state. I here allude to cases where there is neither irritation nor congestion of the gastro-intestinal mucous membrane, nor of the parenchymatous organ, but simply a state of torpor, or at least a deviation from the normal state of the above secretions. Under these circumstances, local depletion or the employment of counter-irritation would be unadvisable and useless. Purgation having failed to effect a cure, the latter will be attained by the use of alteratives.

The best agents in such a state of things are mercury, antimony, alkaline waters, and bitter substances. The first two should be given together or separately, twice a day, in doses of a sixth of a grain of each (more or less, according to the effect). As a general rule, I consider blue pill to be preferable to calomel in chronic affections, because it is less apt to purge, except in the preparation above mentioned, where the calomel is combined with antimony, Plummer's pill. This latter combination is an admirable alterative in certain affections of the skin, but for the digestive secretions mercury is the agent *par excellence*, except in certain idiosyncrasies, where alkaline waters, particularly those of Vichy and of Carlsbad, are more strongly indicated. The sojourn at these places contributes to the useful alterative effects of the waters, because it involves change of air for the patient, and this in itself is a powerful modifier. When a patient can pass a season at the waters, the latter are often sufficient to effect a cure without recourse to mercury. But when the patient is treated at home, the employment of mercury at first, followed by the use of the waters, is generally necessary. The administration of mercury, as well as that of antimony, ought always to be carefully watched by the physician, because the use of these medicines must be suspended so soon as the slightest action on the gums or salivary glands is observed, to be subsequently resumed, however, whenever circumstances admit, of which the physician in attendance alone can judge.

The alterative action of these minerals is aided also by the simultaneous employment of other medicines, alkalies and alkaline waters, when the functions of the liver are impaired; bitter infu-

sions, if the gastro-intestinal mucous membrane is implicated; squill, and other diuretics, when the kidneys are concerned; and sarsaparilla, in cutaneous affections.

We constantly meet with patients whose abdominal functions, the biliary or urinary secretion, or both, are deranged, and who, through carelessness or dislike to medicine, do nothing to restore the normal state of these functions, preferring to trust to time for that. So long as these secretions are not much affected, the individuals continue to eat and drink almost as usual. Still they do not experience the feeling of comfort which follows the accomplishment of the normal function; their breath is often so repulsive that it is disagreeable to approach them. This state of things may be sometimes prolonged for a considerable period, but it is evident that such a condition is not compatible with a sound state of the body. The assimilation of the ingesta is vitiated; the biliary and urinary functions are deranged; and it is clear, that if things remain so for a certain time, the general condition of the body will be affected; the nutrition of the several organs will be modified; and, consequently, morbid deposits may take place in the tissues.

Apart from hereditary predisposition to phthisis, cancer, scrofula, &c., I have not the least doubt that these maladies are sometimes produced in consequence of prolonged neglect of the state of the assimilative functions; the remedy is easy; it is seldom necessary to throw in nauseous drugs. Reform has taken place in this as in many other points. Where purgation is indicated, pills containing the necessary substances may be silvered; and instead of the old abominable *black dose*, we now have the lemonade of citrate of magnesia, which, when well made, differs little in taste from ordinary lemonade, and is quite as efficacious as the old black bottle in removing from the intestines the vitiated secretions they may contain, and the mercury which had been administered some hours previously.

On alteratives in other than functional diseases.—If we cannot doubt the utility of the employment of alteratives in functional derangements of the secretions, neither can we deny their salutary action in numerous cases of chronic affections of the parenchymatous organs, and more especially those of the liver, that is to say, in hypertrophy of the organ, and in other alterations of its tissue. But, in some of these cases, mercury applied externally, and for a long time, in the form of a plaster, is often more judicious; this medicine is better borne, and is more efficacious when so applied than when given internally. This is easily understood. The absorbents of the stomach and duodenum being, of course, weakened by the organic change which has supervened in a viscus so near and so closely connected with these organs, our efforts to produce an internal action are often frustrated, and we are compelled to have recourse to cutaneous absorption.

I specify mercury as the principal and most important alterative, but iodine, opium, belladonna, antimony, sulphur, alkalies (these last in the form of plasters or baths), may be and are daily used

with unquestionable results. How many valuable lives might be saved, if physicians were consulted in time, and, above all, if their advice were followed! How many incipient diseases of the liver would be arrested, and cured by a judicious employment of alkaline mineral waters, such as those of Vichy and Carlsbad! And how many cases of phthisis would be checked in their course by the timely use of certain waters, such as those of Eaux-Bonnes, of Cauterets in the Pyrenees, and of Aix en Savoie!

We know that affections of the spleen are benefited chiefly by residence in a dry atmosphere, and by the preparations of bark. As to the kidneys, I am convinced that their diseases are generally secondary to those of the liver; cure the latter, and the former will disappear. I do not mean to say that Bright's disease, and some others, may not arise *per se;* but, in my opinion, the rule is as I have stated.

On Tumours and Indurations.—In the treatment of the several tumours and indurations of the areolar, fibrous, and other tissues, alteratives which excite the action of the absorbents are the agents the most necessary to the cure. However, medicines of this class are not always sufficient, unless they are assisted by what we may call natural alteratives, that is to say, a different atmosphere and different water from those the patient is accustomed to breathe and drink. The salutary impression produced upon the human economy by change of air is as certain as it is inexplicable. Nature has need of the assistance of art much more frequently than some people imagine. The chylopoietic viscera often become congested, and, whether that proceeds from a functional or organic modification of one or more of these organs, the state is one which no less demands the aid of alteratives.

Conclusions.—The ordinary term of life might be considerably prolonged, if man were more attentive to his regimen, less addicted to personal indulgence, and if he had recourse to the moderate use of alteratives so soon as his functions are found to be deranged.

No one is more opposed than I am to the frequent use of drugs, but there is an immense difference between their excess or abuse, and such a moderate employment of them as is necessary to restore the functions to their normal condition. By taking too much, we give rise to an injurious irritation, and perhaps to inflammation of the gastro-intestinal mucous membrane, or of some of the other abdominal organs. By not taking any, or, what comes to the same thing, by taking so-called homœopathic doses, we produce no effect, or rather we produce an unfavourable effect, in this point of view, that we lose valuable time if the disease is stronger than the *vis naturæ*, and if it gain ground.

Biliary derangement being by far the most common indisposition to which the human body is subject, in consequence of the indulgence of the stomach, no medicine has as yet been discovered which is at all comparable to mercury in its salutary action, and its immediate influence on the secretion of the liver. As I have already said, it expels the redundancy of bile, if the latter is evidently in excess; and it

excites the function of the liver when this secretion is deficient. Everything consists in the mode of administering it. As a purgative, this medicine (that is to say, calomel or blue pill) ought seldom to be given in larger doses than from a grain and a half to two and a half grains, and it should then be removed from the intestines, five or six hours subsequently, by a fluid saline, or other purgative. In this manner we need never fear the injurious effects of the absorption of mercury on the salivary glands. On the other hand, if the liver is chronically engorged, in consequence of neglect of hygienic rules, or from natural causes, mercury is then indicated in doses varying from a sixth of a grain to half a grain given internally, or in the external form of mercurial plasters or frictions. Nothing is easier than to watch the effects of this mode of using it, and subsequently to act according to the indications.

The prejudice which exists on the Continent against mercury has, I believe, done more harm than the drenching system of some of the lower grade of English practitioners has given rise to in an opposite direction.

Certain eccentric individuals, and others who would wish to depreciate the art of medicine, pretend that several eminent physicians have no faith in the Materia Medica. I cannot believe this, for an incredulous man cannot be eminent, at least in a scientific point of view. I do not require that one should believe in the numerous farragoes of drugs which are invented and extolled, but I maintain that it is impossible for any well-constituted mind not to credit the beneficial effects of quina, mercury, antimony, iodine, sulphur, alkalies, and several other medicines.

The direct action of mercury on the liver is too evident not to bring conviction to the minds of a great number of Continental physicians; these physicians are now opposed to this medicine (I regret to say it), simply in consequence of the prejudices of their medical education; but if they gave its use a fair trial, they would not fail to adopt it warmly. The majority of these practitioners believe in the influence of alkalies (the salts of soda and potash) on the functions of the liver; there they are perfectly right. But alkalies are applicable rather in engorgements and chronic indurations of the organ than in transitory derangements of the biliary secretion. Their action is feebler; in a word, they are admirable adjuvants of mercury, and may be administered for a much longer time, particularly because their influence on the salivary glands is rarely perceptible. The object of the physician is to cure his patient as rapidly as possible; in the immense majority of cases, mercury will accomplish this in a fourth of the time required to effect the same by means of alkaline medicines.

The number of men who die, in consequence of excess in eating and drinking, between the ages of 50 and 60, is considerable. I speak of those who eat and drink too much, without losing their intelligence, but who eat at least a third more than their organs are capable of digesting with facility, and who drink enough to give rise to an inflammatory state of the mucous membrane. They thus

weaken its function, by enormously increasing the labour of assimilation.

I do not address myself to those who do not possess sufficient courage or moral energy to diminish gradually, in proportion as they grow old, the quantity of food they eat, or of wine, or other alcoholic drinks which they are in the habit of taking; but I boldly proclaim to those who desire to live to seventy-five, eighty, or even ninety years, in place of fifty or sixty, that the means are, under God, in their own hands; and that those who are willing to content themselves with eating and drinking in moderation, and to have recourse to alterative medicines from time to time, and only when there shall be a decided indication to restore the biliary secretion to its normal state,—will find, I do not hesitate to say, their life prolonged by a score of years. It would be affectation to produce statistical tables to prove this; but the statistics of common sense will demonstrate its truth to each.

I repeat that moderation in the *ingesta*, although the principal means, is not sufficient. In spite of a regular life, the digestive functions, and especially the secretion of the liver, very frequently become deranged. If this state be neglected for a certain time, for weeks, months, or years, an engorgement or alteration of the tissues of the liver, spleen, pancreas, or kidneys will ensue, and carry off the patient, twenty or thirty years before the natural period.

To this advantage of prolonging life, the use of alteratives adds another, that of maintaining the harmony of the functions, and of continuing man longer in the enjoyment of legitimate pleasures. I think, however, that physicians in general ought to pay more attention than they do to prescribing medicines in an agreeable form. Many otherwise sensible people, in consequence of an invincible dislike to repulsive drugs, put themselves in the hands of globulist charlatans, hoping in this manner to obtain a cure on more easy terms. But, as I have already said, we may administer solid purgatives to these delicate people in the form of pills; fluid purgatives may, in general, be advantageously replaced by the citrate of magnesia, which, in solution and with syrup, constitutes a pleasant lemonade. With castor-oil we may prepare, if patients dislike taking it in milk, an emulsion with gum Arabic, and cinnamon, or peppermint water, which will be borne by most stomachs.

We cannot change bitters, for it is in the bitterness their virtues consist; but they do not excite the repugnance which is felt towards senna, rhubarb, and other drugs; and as to the two principal alteratives, mercury and antimony, they may be taken in pills, or in powder mixed with sugar, according to the patient's taste. In a word, I do not find the practice of medicine so very complicated as it is said to be; everything depends upon the first principles, and these principles are, to allow nature to act, and to assist her with alteratives when, as often occurs in civilized life, her own powers are insufficient.—*Bullétin Général de Thérapeutique*, February 28 and March 30, 1859, pp. 183, 280.

Case of Prostatic Calculi, and Obliteration of one Vas Deferens. By Dr. Friedel, Physician in the Royal Navy.

On the 9th of December, 1856, Professor Virchow dissected the body of B., an upholsterer, aged 52, who had died after having been four days in the Charité Hospital. On examining the pelvic organs, extensive adhesions were found between the iliac flexure and the posterior wall of the bladder, which filled up the entire intervening space. The venous plexuses in this situation were extremely tortuous, and were all greatly dilated and loaded with dark blood. The left pudendal plexus was particularly distinguished by its great development. The two vesiculæ seminales were quite concealed by extensive formations of areolar tissue around that plexus, and at first both appeared to be turgid. On closer investigation it was seen that the right vesicula had undergone considerable relaxation and corrugation of its parietes, and was consequently completely collapsed. On section its walls appeared very much attenuated in comparison with those of the left vesicula; the areolar arrangement of their internal mucous surface had almost entirely vanished; their contents consisted of a thin, serous, scarcely viscid fluid, exhibiting under the microscope granular and epithelial elements, but no spermatozoa. The vas deferens, about half an inch above its opening into the vesicula, was swollen, forming a hardish, almost cartilaginous tumour, nearly as large as a bean, above which the vas was, in comparison with that of the other side, uniformly dilated. A fine probe could be passed through the caliber of the vessel only to the upper end of the tumour; neither could any continuation of the canal through the swelling be discovered with a small scissors, nor was any indication of it visible on longitudinal section of the tumour. It was only beneath the tumour that the canal was again recognisable and permeable, although very much contracted. Microscopic examination of the little tumour showed that it consisted of a very dense mass of connective tissue, with very numerous elastic fibres, and elongated, fusiform nuclei; and that it was surrounded by an hypertrophied layer of the muscular coat of the vas deferens. The ejaculatory duct was free, and of the ordinary capacity. On the left side the vesicula seminalis and vas deferens were normal, except that in the latter the various sized reticular lacunæ of the lower extremity were very beautifully developed.

The prostate gland, enlarged on the whole, was compact and hard to the touch, was not easily cut with a knife, and during section yielded a remarkably grating and scratching sound. As I suspected that this might be caused by the impaction of solid masses in the tissue of the gland, I subjected the secretion, collected from several surfaces of section, to microscopic examination. Numerous crystals were now discovered, which strongly refracted the light, and appeared in one place isolated; in another, in circular groups, intricately arranged around a centre; in another, again, in a fan shape, with their apices lying together. The separate crystals were in the form

of longish, sharply-pointed, four-sided pyramids. They were totally insoluble in alcohol and in water; but, on the contrary, dissolved with great facility both in vegetable and mineral acids, and in alkalies, leaving after their disappearance some slightly granular mucous flocculi. The addition of acid did not produce the evolution of gas. When oxalic acid was added after the disappearance of the crystalline masses, amorphous globular depositions of oxalate of lime immediately took place; so that these crystals probably consisted of phosphate of lime, which was also found to be the sole ingredient in the concretions just now to be mentioned.

With these purely crystalline formations were found, nearly in almost as great abundance, the well-known roundish, laminated bodies, from the first stages of their formation to the largest calculi hitherto observed, the largest being equal in size to a very large pea. The first traces of these concretions appeared in the form of very small, round, sharply-defined, gelatinous globules, of perfectly homogeneous quality, and with difficulty compressible, presenting neither striæ, membrane, nor any diversity of contents. It was only on pressure with the covering glass that a membranous envelope could be observed, in consequence of some of the corpuscles bursting or tearing from the edge, and giving exit to their thickish, coherent, mucous contents. Most of these corpuscles were circular, some were oblong, only a few were compressed into an angular shape, presenting a pyramidal appearance. Their colour was for the most part a light amber-yellow, seldom so faint as to render them invisible. From this lowest shade, without any decided stratification, all the other steps of their development could be traced. Thus we have an infinite number of layers, for the most part equal in extent, and not always equally distinct, throughout the entire circuit. Often in the larger of these layers the shades of colour are numerous, giving the appearance as if the lighter and somewhat obliterated strata were but one. In the latter, too, however, the lamination can be distinctly seen on accurately adjusting the focus. The larger the bodies are, the more irregular is their contour. We then find the oval ones often bulged out, compressed, or angular, the round ones frequently polygonal. In general, the layers first deposited crumble in the centre of the white gelatinous corpuscle. We therefore see, in the interior of the bodies, dark, crumbling contents, surrounded by a laminated shell. On the addition of caustic alkalies, the lamination of the envelope immediately disappears, and the latter changes into a homogeneous mass, while its contents remain unaltered. The corpuscle at the same time swells up, splits into irregularly radiating chinks, and lets the granular contents escape, or still partly encloses them. In some of the round and larger specimens of these bodies a slender radial fissure not unfrequently passes from the periphery to near the layer surrounding the debris in the interior. I never saw this touch or extend into the centre. This radiating striation depends on the deposition of salts of lime, as it destroys the former transparency of the layers, while the opacity is again removed by the

addition of hydrochloric acid, and the corpuscle is rendered once more clear. The smallest of these concretions are not visible to the naked eye; on the contrary, we can with the naked eye recognise the medium-sized ones by their great lustre under the covering-glass, and might easily confound them with very small transparent grains of sand. By this lustre they are at once distinguishable from the globular and larger agglomerations of crystals above mentioned, which appear as dull whitish-yellow points, and can be very easily isolated with the preparation needle.

Under the microscope these bodies did not exhibit characteristic reactions with chemical reagents. On the addition of a solution of iodine, some few assumed a dark brown colour, others again, particularly the larger and the smallest of all, remained unchanged and homogeneous. Concentrated acids appeared to act on them only by abstracting water; for the bodies then became slightly shrivelled, and their outer membranes presented a faintly wrinkled aspect. Only the above mentioned behaviour towards solutions of potash and soda, and, in those which were radiated and striated, towards hydrochloric acid, is to be noted. Now although these microscopic formations could not in their present state cause any great disturbance in the system, unless the enlargement of the gland containing them may be attributed to them, they might by their growth produce no inconsiderable annoyance and obstruction. It was not discovered whether the patient had suffered from derangement of the urinary organs. If such had been the case, an enlargement of the middle lobe of the prostate would probably have been suspected and diagnosed, or a stricture in the prostatic part of the urethra. Here there was considerable obstruction, but neither stricture in the proper sense of the term, nor hypertrophy of the middle lobe of the gland. The obstruction consisted, in fact, of four prostatic calculi lying on the left side behind one another at the side of the caput gallinaginis, and immediately under the reddened, inflamed, and deeply corroded mucous membrane of the urethra; thus, when the latter was divided, four bluish-red translucent points were seen, almost presenting an appearance as if small hemorrhagic masses lay under and elevated the mucous membrane. But the knife soon showed that these were hard, brown, shining, jagged calculi, completely enclosed by the glandular substance, and covered by the mucous membrane. The largest, equal in circumference to a large pea, lay next the bladder; under it was a second, as large as a lentil; and then two smaller of a light brown colour, and of the size of grains of mustard-seed, with uneven surfaces. All together weighed little more than a grain. They exhibited a laminated structure, and their fracture presented an amber-like lustre, but in the centre was a small cavity containing a grayish-white pulverulent substance. The layers were very distinctly marked; internally they were of a light brown colour; externally they were darker.

Fragments of the calculi were submitted to chemical examination. They dissolved at first with difficulty in cold dilute hydro-

chloric acid, but more easily with the aid of heat. On platina foil they blackened, but did not diminish in volume, neither did they diffuse any odour, melt, or deflagrate. The animal matter, whose presence was betrayed by the blackening effects of heat, was precipitated on the addition of alcohol to the clear solution as transparent gelatinous mucus, and the remainder of the mass proved to be phosphate of lime; consequently, the same substance of which the other crystalline masses were composed.

These stones were evidently only the higher, and, perhaps, highest stages of development of the numerous microscopic concretions, which, had the patient's life been prolonged, might have reached a similar state. More extensive disturbances might, under such circumstances, perhaps, have led to a fatal result, which in the present case was due to the occurrence of pneumonia.

That these stones were only such concretions, greatly enlarged, is seen from the laminated structure, the nature of their central contents, which depends much less upon alkaline change of the inorganic salts, &c., as has been supposed, than probably on simple, I might say necrotic, destruction of the primary gelatinous globule, after the formation around it of several scarcely permeable layers, as we find the same in very small microscopic corpuscles, with from six to ten layers. So soon as these are formed, the communication of the primary contents with the surrounding fluid is cut off; they consequently collapse and perish. A further advance towards the formation of stones from these originally soft concretions, consists in the gradual absorption of calcareous salts. The latter constituents will vary according as the secretion of the gland contains a predominance of oxalate, phosphate, or carbonate: then the opacity I have mentioned takes place in the many laminated bodies, the radiating striæ are formed, and the corpuscles become firmer and darker-coloured.

In this case the glandular secretion contained a predominance of phosphate of lime, as was evidenced by the crystalline formation which manifestly depended upon that salt; and accordingly, this constituent formed the great bulk of the larger stones; Wollaston found the same in similar stones; H. Meckel in oxalate and carbonate of lime.

Unfortunately, it could not be ascertained whether this change gave rise to any considerable suffering. It is, however, scarcely conceivable that this state should have had no effect upon the discharge of urine, as the inflammation and erosion of the urethral mucous membrane in the situation it occupied was sufficient to produce such a result. How the affection should have been diagnosed and treated it is not easy to say, nor does the investigation of these questions lie within the scope of the present paper.—*Virchow's Archiv*, Bd. 14, Heft 1 und 2, 1858, p. 193.

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